

# Chemical Week

May 22, 1954

Price 35 cents



► The patient is ailing but on the mend; that's experts' prognosis of Boston as chemical center p. 26



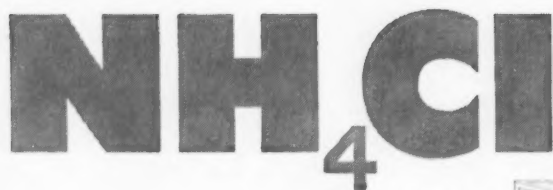
Synthetic mica will cost more; but it will be made in the U. S. from indigenous materials p. 46



Five-score firms try to fatten spread between gross and net in nuclear instrument field . p. 58

The seaway is still six years off but chemical firms are already assessing its impact . . . p. 74

► Beauty parlors chafe but specialty makers cheer \$70-million business in home permanents p. 101



These properties of  
**SOLVAY AMMONIUM CHLORIDE**  
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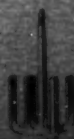


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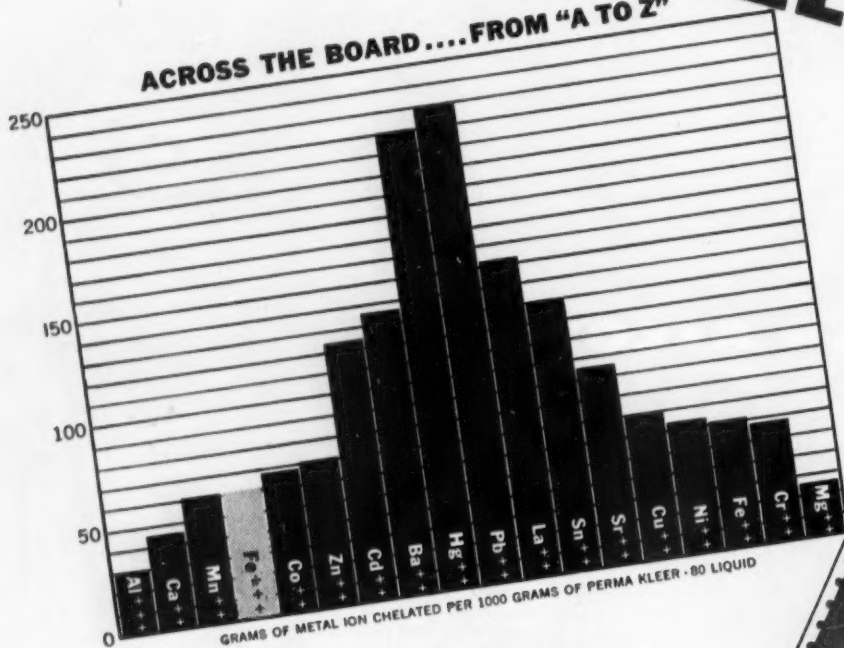
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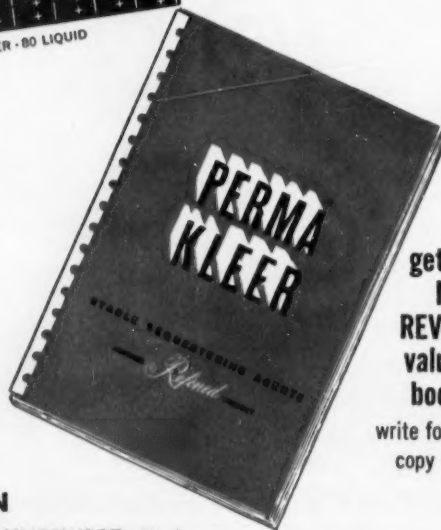
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May 22, 1954 • Chemical Week

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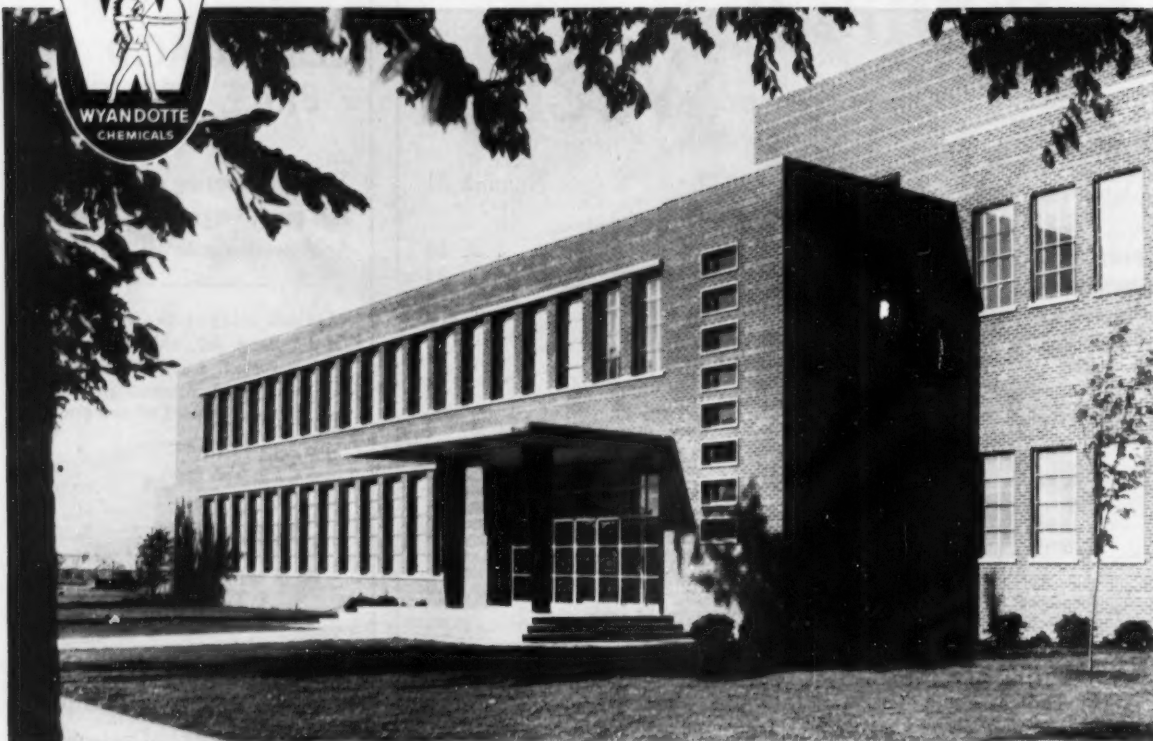
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Diethylene Glycol /  $\begin{array}{c} \text{O} - \text{CH}_2 - \text{CH}_2 - \text{OH} \\ | \\ \text{O} - \text{CH}_2 - \text{CH}_2 - \text{OH} \end{array}$

**Why is Wyandotte adding industrial grades of glycols?**

There are two reasons. One is to provide our customers who need them with purer grades of ethylene glycol and diethylene glycol. The second is to expand our markets into still wider fields.

**What about the future of glycols?**

We think the surface has been barely scratched. Every day, new uses are being found for these versatile petro chemicals. Ethylene glycol and diethylene glycol already play important roles in the processing and manufacture of cellophane,

synthetic fibers, synthetic rubber, explosives, paper, adhesives, resins and dyes. We believe the future of glycols and their related products is as unlimited as that of the chemical industry itself.

### What is one example of the future for glycols?

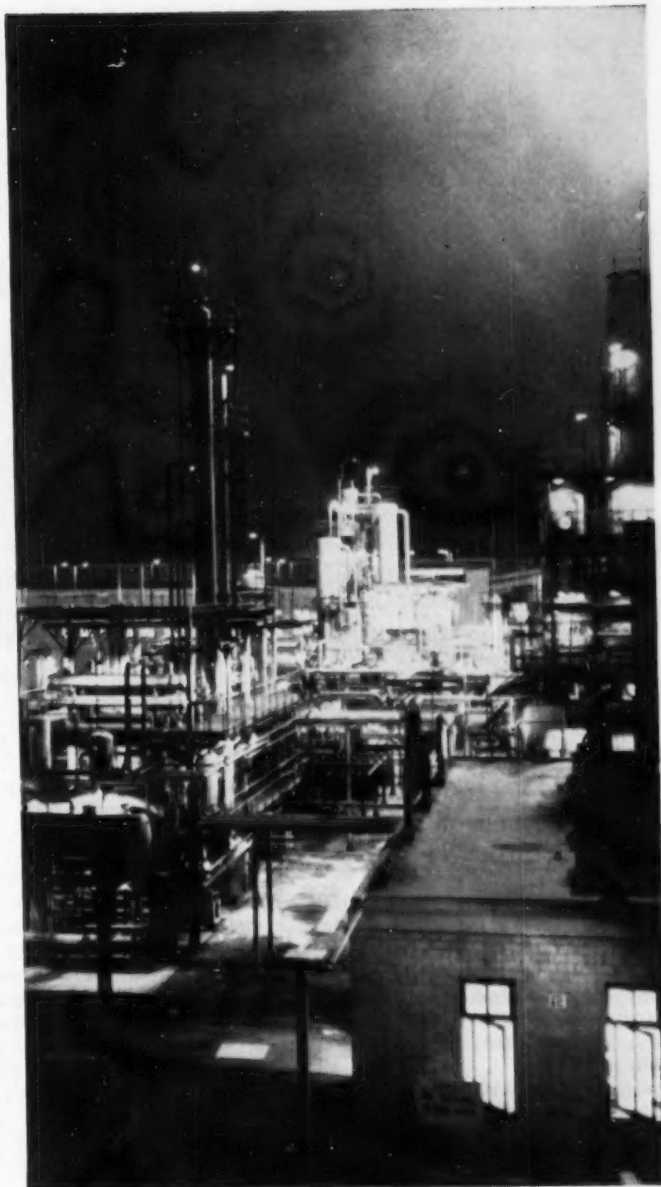
Synthetic rubber. One of the leading rubber companies has recently announced a new synthetic, the formula of which is based on ethylene and propylene glycol, adipic acid and a diisocyanate. The resulting polyester resembles Germany's Vulcollan, but does not have to be finished immediately. Tire treads of the new rubber are reported to have two to five times the wear resistance of cold rubber. Resistance to oxidation is claimed to be superior to both natural and synthetic.

### Can Wyandotte tell you how to use glycols in your business?

No. When it comes to your own business, we believe you are the best authority. We will, however, co-operate with your plant and research people, giving them the benefit of our many years' experience as a basic producer of glycols, and putting our thorough knowledge and complete research facilities at their disposal.

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## OPINION . . . . .

### Fire Fighters

TO THE EDITOR: . . . I have read your news article on fire extinguishers (*May 1*). . . . It suggests that the only reason for approval of a fire extinguisher is a reduction in insurance premium, whereas it appears to us that a much more compelling reason is the reliability of the device. . . . You clearly point out the drawbacks and disadvantages of the small unapproved type . . . but nevertheless appear to endorse . . . and urge their widespread use in homes, boats, automobiles, etc. . . .

From the standpoint of the safety of persons and property against the hazards of fire, our reaction is that this leaves a good deal to be desired. . . .

We have a high regard for your publication . . . that is why we are concerned when you offer advice of this sort. . . .

PERCY BUGBEE  
General Manager  
National Fire Protection Assn.  
Boston

We agree in part but disagree in the main. We pointed out clearly the shortcomings of the smaller, unapproved fire extinguishers. "They will spray about 20 seconds before they're exhausted, whereas soda-acid extinguishers will work for 5 minutes. Also, their spray range—10-15 ft.—has been criticized as being inadequate." And, "One of the main complaints from makers of approved extinguishers is that the limitations of the [unapproved] devices aren't plainly indicated to buyers, or clearly impressed on them."

In the light of these comments, we must disagree with the contention that we were "endorsing" or "offering advice." We were, candidly reporting on the merits, shortcomings, and market progress of all types of extinguishers.—ED.

### Unsolved Problems

TO THE EDITOR: You missed the "Target" completely with your article "New Chemicals to Carry Colors" (*April 10*). You only mention the principal carriers for Dacron; what happened to the vast field for chemical assistants for the dyeing and redyeing of Orlon?

As head of the Technical Committee of the Garment Dyers Guild of America, I would like to bring to light some of the grief our members have had in their attempts to redye Orlon garments (both 100% Orlon

and blends) for the public. You state, "One way to dye synthetics is to use a carrier." A carrier is practically useless on Orlon. . . .

The consumer is entitled to have the color of his or her garment changed if he so desires. In the case of Orlon we cannot do this satisfactorily. . . .

In the same issue in your Research department you state, "By the time a synthetic fiber breaks into the market, it holds very few secrets for its producer—dyeability will be well defined."

It may not hold many secrets for the producer, but it holds many secrets for those of us involved in the servicing of the garments made of the fiber. . . .

ARTHUR C. TEICHNER  
Almore Dye House, Inc.  
Chicago

We appreciate the problems of redyers but we don't feel that we missed the target at all. We did not mention only the principal carriers for Dacron. We used the terms "man-made fibers" and "synthetics" and then listed a number of common carriers. The reason: these carriers may be used on more than one synthetic fiber. Dacron was used as an example, and example only—chiefly because that's where carriers are being researched most actively.

Du Pont has this to say about Orlon: "Type 42 can be satisfactorily dyed in a good shade range with basic colors having excellent wet-fastness properties and good lightfastness for a goodly number of shades. The color applied this way can be removed and a satisfactory redyeing achieved."

No one, including CW, asserts that all problems have been solved; that's what perplexes textile chemists and dyers—and keeps researchers busy.—ED.

### Brighter Outlook?

TO THE EDITOR: Your news article (*April 17*) on metallic calcium was interesting and timely.

We don't, however, agree that its domestic future is quite as dark as you make it appear.

Calcium has certain inherent advantages over both magnesium and sodium. It is highest of the three in the EMF series of metals and, as you pointed out, has a higher degree of reactivity than either of the other two. In particular, the heat of formation of CaO is somewhat higher than MgO and much higher than Na<sub>2</sub>O, adding to its usefulness as a reducing agent.



Its boiling point is also substantially higher than either of the other two.

We should also like to correct your impression that no U.S. melting facilities exist and to call your attention to the fact that we are currently quoting calcium ingot of 99% purity at a price of one dollar and fifteen cents (\$1.15) per pound.

W. J. ASH  
Vice-President  
Nelco Metals, Inc.  
Canaan, Conn.

We agree, of course, with Reader Ash on the inherent advantages that calcium has—and we cited them. Nonetheless, as we also said, it has a tough economic road to hoe—with sodium and magnesium priced in a far lower range.

Nor did we say that calcium as such faces a dark future; we did emphasize, however, that the domestic calcium business is in the doldrums, and there is little prospect of large-scale U.S. output—partly because of imports from Canada.

We cited Nelco as a producer of 15,000 to 25,000 lbs. of calcium per year; the purer grades, however, we placed at around \$2/lb.—Ed.

### Strongly Plus

TO THE EDITOR: In your table of chemical company earnings (May 8) there should be no minus sign in front of 17.4 in the "percent change in pretax earnings."

As you reported correctly in the table, our pretax earnings were up almost a million dollars for the first quarter of this year over the first quarter of last year. . . .

COLIN C. CAMPBELL  
Rohm & Haas Co.  
Philadelphia

Our proofreaders and we are sorry for that dismal minus sign; but that the figures themselves overshadow any errant minus is perhaps reflected by the strongly plus activity in Rohm & Haas stock—up a lusty 28 points in one recent day.—Ed.

### Generosity to Universities

TO THE EDITOR: You list the scholarships and fellowships of various companies (May 1) for both 1953-54 and 1954-55. . . . You report we have one fellowship for 1954-55 whose value is \$1,500. In fact, we have 11 fellowships at 10 different universities at a total cost of \$24,850. This actually represents a higher percentage of gross sales than any company in the U.S. . . .

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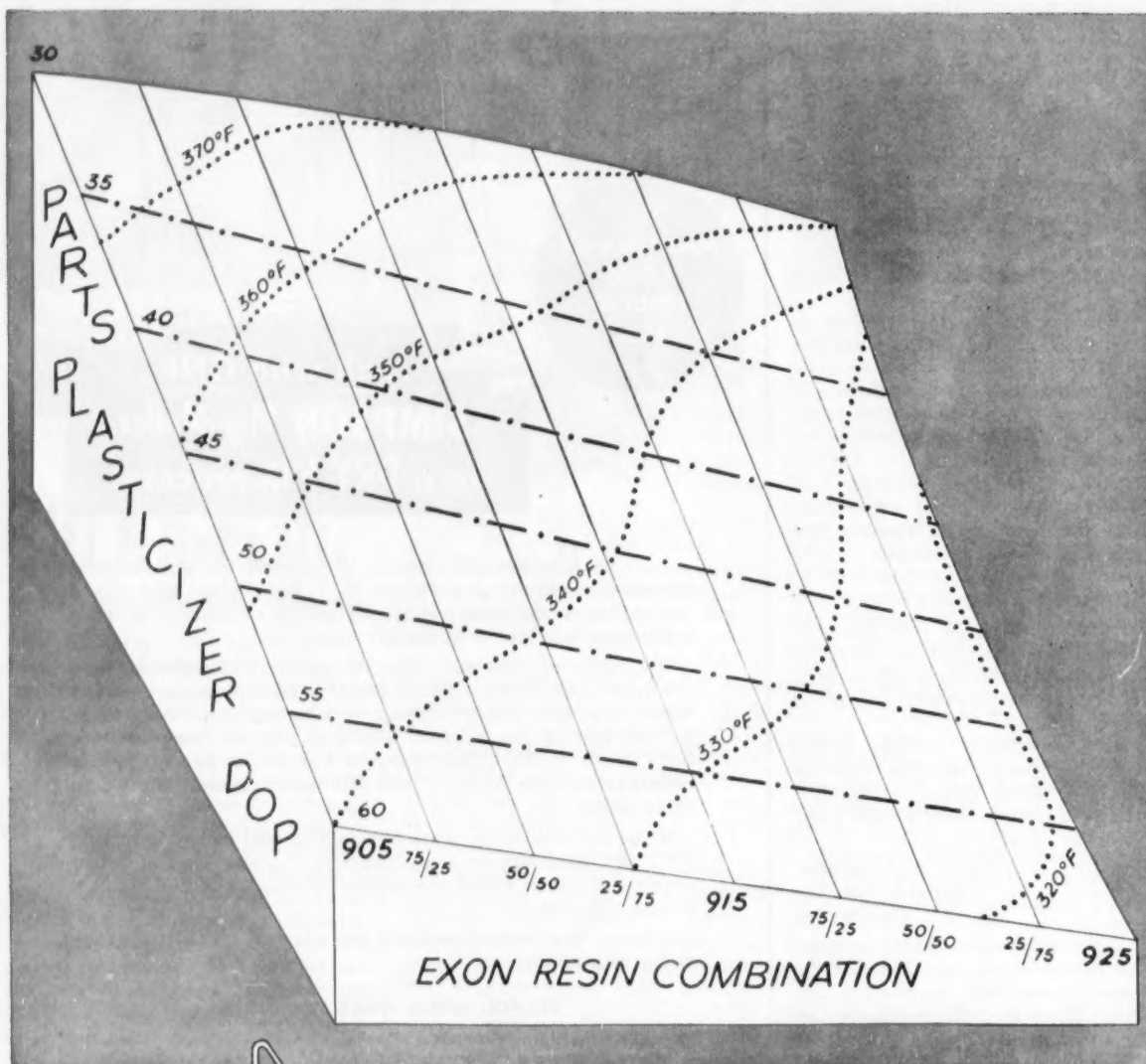
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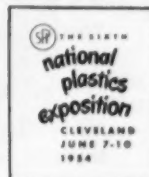
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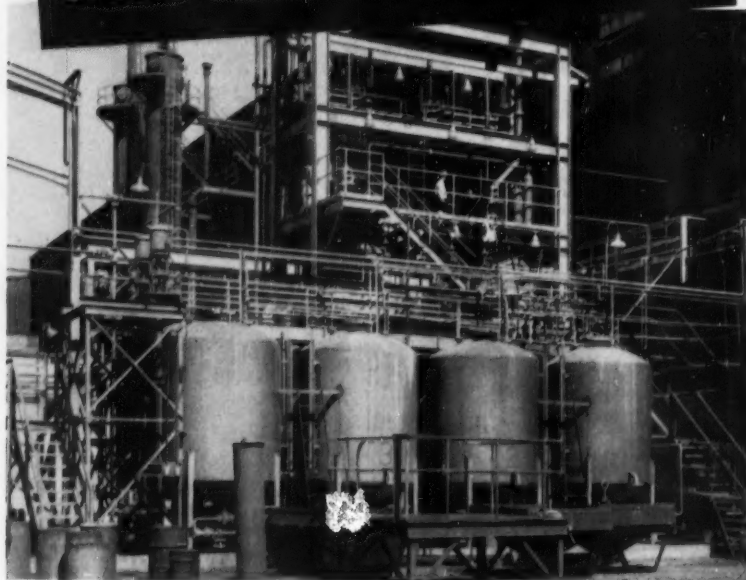
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*Third*, every move that we make when working with a client is toward providing a facility that meets all requirements *at the lowest possible capital investment*.

We shall welcome an opportunity to discuss these advantages in terms of your requirements . . . without obligation to you, of course.



EXECUTIVE OFFICES: Ferguson Bldg., Cleveland, Phone Tower 1-6400 • NEW YORK: 19 Rector Street • HOUSTON: 2620 S. Main St. • CHICAGO: 1 N. LaSalle Bldg. • LOS ANGELES: 411 West 5th St. • CINCINNATI: 826 Enquirer Bldg. • SAN FRANCISCO: 74 New Montgomery St. ATLANTA: 86 Forsyth St. • MONTREAL: 1015 Dominion Sq. Bldg.

## OPINION . . . . .

Undoubtedly, the source of your information was an erroneous statement in a bulletin issued by the Manufacturing Chemists' Assn. . . .

. . . In view of the obvious damage to our standing with the universities, especially since this misinformation might cast reflection upon our generosity towards universities, I wonder if it doesn't call for a correction on your part. . . .

W. F. UNDERWOOD  
Manager  
Technical Division  
The Visking Corp.  
Chicago

*It does, indeed, call for a correction and apology on our part. The Manufacturing Chemists' Assn. also advises us that its original error—which it terms "inexplicable"—will also be cleared away.—Ed.*

## Center of Controversy

TO THE EDITOR: Your report on biocatalytic products—and their use in cleaning drains and increasing the efficiency of sewage disposal plants—was an excellent treatment of the problems of marketing a unique specialty product.

I feel, however, that the term "biocatalytic," while it has acceptance in the historical development of the general properties of enzymes per se, is not aptly descriptive . . . In my opinion, such products as you mention should more generally be described as biological additives for waste treatment. It would be of value if some thought were given at this time to terminology factors . . . to simplify problems of communication as this field develops . . .

While some sanitary engineers have come out flatly against the use of such products in sewage treatment, these definite opinions are thus far based on inadequate laboratory studies . . . little or no direct plant observations by the individuals . . . (Prejudice, it has often been said, is a great time saver; it enable one to form a definite opinion without waiting for the facts.) . . . The final determination of the value of these materials can be made best on plant scale studies . . .

In sanitary engineering, because it is an offshoot of civil engineering, most developments have been in mechanical and physical improvement rather than in process ideas. In the treatment of sanitary sewage the two notable developments in the past fifty years have been in activated sludge (biological process develop-

Gives higher hardness and  
better abrasion resistance  
with NO LOSS OF FLEX LIFE!

## CAT-TEX SOLES

*Give  
More Mileage,  
More Comfort  
because they're  
Compounded with*

## DAREX 43G

One of the reasons Cat's Paw Rubber Company of Baltimore produces shoe soles that are recognized in the trade as leaders in both comfort and durability, is the use of DAREX 43G in the compounding process.

DAREX 43G High Styrene Copolymer imparts both higher hardness and unusually long flex life to shoe soles. Abrasion and tear resistances are also superior. Furthermore, stocks compounded with DAREX 43G show exceptional stability in prolonged storage, giving better mold flow—more flexible production schedules.

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May 22, 1954 • Chemical Week



**DAREX High Styrene Copolymer**

IS A PRODUCT OF

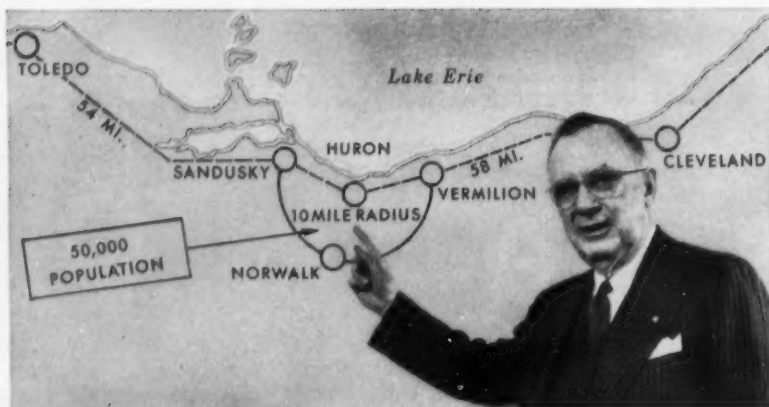


**DEWEY and ALMY**

Chemical Company

Cambridge 40, Massachusetts





H. H. Hampton, Vice President  
Industrial Development, Nickel Plate Road

## We have plenty of water

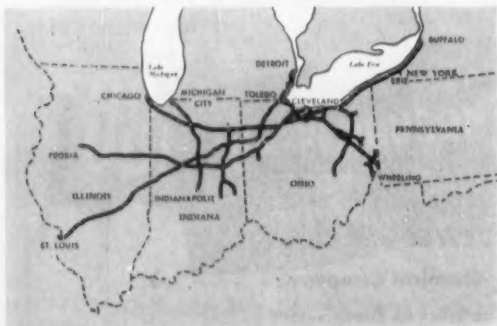
There is enough water to meet any industrial demand at Huron, Ohio, midway between Cleveland and Toledo on the south shore of Lake Erie at the mouth of the Huron River. It is an area worth investigating as a location for a new plant.

The Ohio Edison Company serves the territory with electric power through a 132,000 volt and a 34,500 volt transmission line. The Ohio Fuel Gas Company has a 16-inch natural gas line adjacent to the industrial area.

Huron has a 50,000 population within a 10-mile radius and is a progressive, well balanced community with excellent educational and recreational facilities.



The Huron Harbor, which has fine dock facilities to accommodate Great Lakes freighters, is on the main line of the Nickel Plate Road, noted for its High Speed Service.



The New York, Chicago and St. Louis Railroad Company

For detailed information about the Huron area or other sites along the Nickel Plate Road, call or write Mr. H. H. Hampton,

**NICKEL PLATE ROAD**  
1401 Terminal Tower  
Cleveland 1, Ohio



## OPINION . . . . .

ment) and design of classification equipment for sedimentation (physical process) . . .

Changes in diet have influenced sewage composition . . . there has been a steady reduction in the intake of fuel foods such as carbohydrates and fats because no one does nearly as much muscular work as our ancestors . . . The significance of this change is not always demonstrated by routine chemical analysis of sewage . . .

The waste to be treated is also affected by the bewildering number of chemical products consumed in the home and industry . . . (and by garbage disposal units).

We cannot accept rapid changes in plant design to compensate for these changes because of the huge investment. It is therefore evident that biological additives have a place in . . . waste treatment . . . either to aid overloaded plants or assist in other ways . . . The same applies to the treatment of industrial wastes . . .

Our product, Bionetic, and others, have helped municipal plants, industries, resorts and householders in a way that the most severe critics of these products have not been able to do . . . A good deal of the work has been documented and published . . .

Plant operational studies and experiences will establish the economical limits of effective application. The healthiest development will come from acceptance of operational experiences and plant practice developed by people in the field . . .

A. J. KRELL  
Technical Director  
Reliance Chemicals Corp.  
Houston

## DATES AHEAD

**Chemical Specialties Manufacturers' Assn.**, midyear meeting, Netherlands Plaza hotel, Cincinnati, May 23-25.

**American Water Works Assn.**, annual conference, Seattle, May 23-28.

**Atomic Industrial Forum Inc.**, topic: nuclear reaction development, Sheraton Park hotel, Washington, D.C., May 24.

**Society of the Plastics Industry**, exposition, technical conference, Public Auditorium, Cleveland and Statler hotels, Cleveland, June 7-10.

**American Plant Food Council**, annual meeting, Homestead, Hot Springs, Va., June 10-13.

**American Society for Testing Materials**, annual meeting, Sherman and Morrison hotels, Chicago, June 13-18.



# U.S.I. CHEMICAL NEWS

May 22

★

A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

★

1954

## Chemical Progress Week

Sponsored by the Manufacturing Chemists' Association, May 17-22 is the first annual Chemical Progress Week. Its purpose is to bring home to the American public the significance of the chemical industry in terms of the individual. U.S.I., as a member of the MCA, is happy to participate in this industry-wide effort.



## Alkyd Resin Improves Outside House Paints

Outside house paints containing a new U.S.I. alkyd resin, Aroplaz 1400, should maintain a better looking appearance for a longer time. The result of over 7 years of research and practical testing, Aroplaz 1400 is a pure, low viscosity alkyd. It can be used in either white or tinted paints in place of all or part of the oil, such as linseed, ordinarily used.

Tests indicate that paints made with Aroplaz 1400 give cleaner, whiter surfaces after exposure and that the over-all durability is considerably improved.

Aroplaz 1400, experimentally known as resin DX-159, is now in commercial production and is supplied at 100% solids content. U.S.I. offers detailed information to paint manufacturers who wish to make independent investigations of this unique new resin.

## Promising Sunscreen Is Introduced For Cosmetics

A new development in filters for ultraviolet light, particularly useful for sunscreen cosmetics, has been announced by U.S.I. The material, known as H-124S, is (butyl carbityl) (6-propyl piperonyl) ether. Safe for application to the skin, the new product is a practically odorless oil of extremely low volatility. It is chemically stable as well as stable to the action of ultraviolet light, and also shows excellent solubility characteristics.

H-124S stabilizes esters presently used in sunscreen compositions. The promising compound can be used by cosmetic manufacturers alone or, preferably, to supplement the absorption range of existing sunscreen materials. Of great importance is the fact that it does not screen out tanning rays. Further information on H-124S as a sunscreen can be obtained by writing to the editor of *U.S.I. Chemical News*.

## New Plastic Windows Keep Themselves Clean

A new type of plastic window has been designed for industrial and public buildings. The windows are said to be self-cleaning, shatterproof and translucent. They are glazed on one side only and transmit diffused, glare-free light. Casement-type windows are available in various sizes to fit all standard casement frames, according to the manufacturer. The windows snap into place.

## Interest Renewed in CPR Products As Truck and Garden Insecticide Due to No Build-Up of Immunity

### Synergized Rotenone and Pyrethrins Regain Preferred Position

Increasing reports of build-up of acquired resistance or so-called "immunity" by insects against some insecticides has resulted in renewed interest in CPR dusts and sprays. CPR is a combination of piperonyl cyclonene, pyrethrins and

rotenone, and the synergistic action of piperonyl cyclonene increases the effectiveness of the combination beyond the sum total of the three insecticides individually.

Because of its recognized effectiveness combined with low toxicity—all three ingredients being of a low order of toxicity—CPR has enjoyed a preferred position in control of many insects, particularly in the garden and truck crop field. In the sweeping upsurge of newer chlorinated hydrocarbons, many growers risked the greater toxic hazards to avail themselves of the residual killing power of these insecticides.

### Rotenone in Short Supply

Reports of insects building an immunity to these insecticides have increased in each season. First it was flies, then mosquitoes and more recently other insects such as the cabbage caterpillar. The result has been a resurgence of rotenone, which had long been the basic insecticide of these growers. In the intervening time, however, supplies of rotenone have become critical and it became apparent that the extra effectiveness of synergized rotenone could serve as the best method for extending the supply and in-

MORE

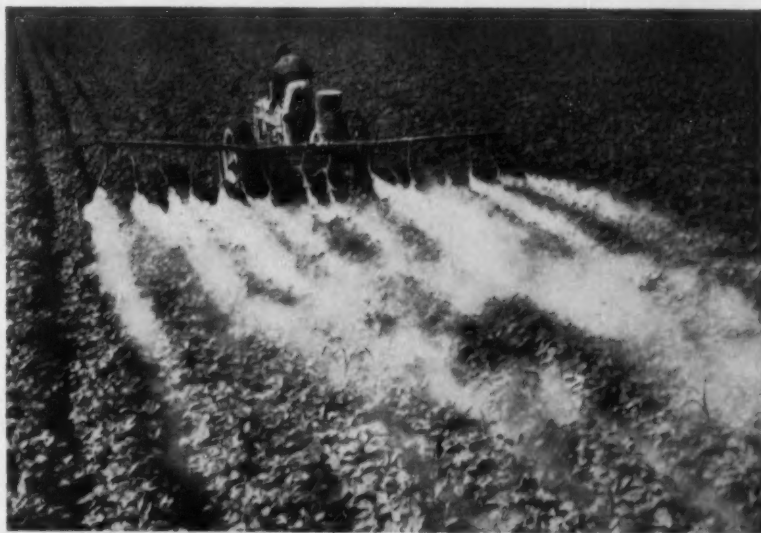
## Methionine Increases Growth Rate of Infants

Infants fed half-again as much DL-methionine as their diets normally would contain gained 20% more weight in a month's time, according to a recent report. These results further illustrate the strategic role methionine plays in the metabolism of fat, protein, sulfur and water.

The group of infants between the ages of three and four months was given supplemental methionine at the rate of 180 milligrams a day. Another group receiving the same basic diet, without methionine, was studied for purposes of comparison. The extra methionine produced no unfavorable reactions.

## Table of Elements Revised

A new periodic table of the elements has been prepared with improvements in layout and arrangement. This is said to be particularly true with respect to the complicated placement of atomic weights and numbers in relation to the symbol of the element.



Application of CPR dust to beans with a tractor operated dusting machine. CPR products control insect infestation in such a manner that produce is free of hazardous toxic residues.

May 22

★

# U.S.I. CHEMICAL NEWS

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1954

## CONTINUED

## New Interest In CPR Products

creasing the results.

Not only are pyrethrins and rotenone helpful in "activating" each other, but both of them give a synergist action in combination with piperonyl cyclonene.

### New CPR Products

Four new CPR spray products for use on garden and house plants are being introduced to the market for insecticide formulators in 1954, in addition to the dust base and spray concentrates previously available from U.S.I. With these products, formulators can obtain standardized combinations of ingredients for which all labeling and test data is complete.

The convenience of these combinations works two ways: in providing the formulators with supplies which meet known standards for each and all of the ingredients, and second in providing research-supported claims for the product he sells.

The commercial grower of beans, cabbage, cauliflower, broccoli, squash and cucumbers finds the CPR products can control insect infestation in such a manner that the produce will be free of hazardous toxic residues. And the home gardener wants an insecticide which will control a wide range of insects. There is increasing evidence that one of the advantages of the botanical insecticides such as CPR lies in the fact that they are not so destructive to natural parasites of insects.

This was recently reported on in *Pyrethrum* Past with reference to the work of Dr. C. P. Clausen of the University of California. According to the journal, "Clausen has concluded, after a review of different workers' observations, that botanical insecticides are superior to inorganic materials wherever repeated application is made. He believes that such materials as rotenone and pyrethrum kill only the adult parasites present on foliage, and nothing further. He points out that chemical and biological control measures may sometimes be incompatible, sometimes supplementary." These new developments are all contributing to the renewed interest and new products based on CPR.

## Ultrasonics May Be of Use In Pharmaceutical Industry

The use of ultrasonics holds real potential for the pharmaceutical industry, according to a recent report. The most promising use of ultra-sound in the industry is thought to lie in its application to problems which have not been solved by other physical and chemical processes. One possibility is said to be in the production of emulsions and suspensions in materials previously refractory to such treatment. Another is in the production of vaccines, where experiments have shown that intact undenatured antigens can be extracted ultrasonically from the microorganisms responsible for tuberculosis and other diseases.

## Alkylating Agent Helps In Synthesis of Organics

A new method for making many alkylated compounds has been developed. Described as promising for the preparation of lubricants, additives, plasticizers, therapeutic agents and surface-active agents, the method uses an alkylating agent which can be obtained from commercial vegetable oils.

The alkylating agent, according to researchers, is a long-chain alkyl group. It can be used to alter the molecular structure of such varied organic types as phenols, mercaptans, alcohols, amines, salts and benzene.

## Gold Discs Burst At Low Pressures

Gold is now being used to manufacture low-pressure rupture discs. Gold discs reportedly have been found to burst consistently at low pressure, be immune to corrosion and yet be economical. They are said to be accurate to within 5% for bursting pressures above 50 psi and to within 2 psi for bursting pressures less than 50 psi.

Since the precious metal is reclaimable, the cost of the discs does not differ greatly from base metal discs.

## TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

An insect repellent packaged in an Aerosol container is said to give positive protection against mosquitoes, black flies, chiggers and many others. It is described as virtually odorless after application and safe for clothing. (No. 1040)

A new line of laboratory glassware is described as smaller than regular glassware, but not in the micro range. (No. 1041)

Antibiotic bandages are now available without a prescription. Impregnated with a combination of three antibiotics, they have been approved for sale by the Food and Drug Administration. (No. 1042)

For tapping, deephole drilling, lathe machine cutting or hand reaming on any metal, a blend of chemicals is said to free the tool and permit continued rotation and pressure. According to the manufacturer, less tool breakage and cleaner threads, surface and holes are the result. (No. 1043)

Aluminum transport cans may replace stainless steel cans for storing and transporting chemicals, pharmaceuticals and food products. The lightweight cans are described as seamless and easy to clean and have an airtight seal. (No. 1044)

Gas and air leaks can be detected by a liquid which penetrates rust scales and cracks, forming bubbles where the leak occurs. The liquid is claimed to be nonflammable and nonexplosive. (No. 1045)

A nonionic detergent soluble to a degree in most oils has been developed. It will be manufactured in a commercial grade for the textile, general cleaning and oil additive trades, and according to the report, a refined product will be produced for the cosmetic industry. (No. 1046)

Erbium oxide is reported to be available at a minimum purity of 98%. Principal impurities are fractional percentages of dysprosium, holmium, thulium, ytterbium and yttrium oxides. (No. 1047)

Serological baths with a temperature control closer than 0.4° C. have been marketed. The base and walls are claimed to be free of heating elements, which have been placed beneath the stainless steel tank. (No. 1048)

Single crystal germanium is now in commercial production. The crystals are described as homogeneous in electrical as well as crystal properties, not only on a gross scale but also on a microscopic scale. (No. 1049)

## PRODUCTS OF U.S.I.

### ALCOHOLS

Amyl Alcohol (Isomyl Alcohol)  
Butanol (Normal-Butyl Alcohol)  
Fusel Oil—Refined  
Propanol (Normal-Propyl Alcohol)

### Ethanol (Ethyl Alcohol)

Specialty Denatured—all regular and anhydrous formulas  
Completely Denatured—all regular and anhydrous formulas  
Pure—190 proof U.S.P., Absolute—200 Proof  
Solex®—proprietary solvent—regular and anhydrous

### ETHERS

Ethyl Ether, U.S.P.  
Ethyl Ether, Absolute—A.C.S.

### ACETONE—A.C.S.

### ANOLS

Ansol® M  
Ansol® FR

### ACETIC ESTERS

Amyl Acetate—Commercial and High Test  
Butyl Acetate  
Ethyl Acetate—all grades  
Normal-Propyl Acetate

### OXALIC ESTERS

Dibutyl Oxalate  
Diethyl Oxalate

### PHthalic ESTERS

Diamyl Phthalate  
Dibutyl Phthalate  
Diethyl Phthalate

### OTHER ESTERS

Diatol®  
Diethyl Carbonate  
Ethyl Chloroformate

### RESINS (Synthetic and Natural)

Arachem®—modified types  
Arafene®—pure phenolics  
Aroflat®—for special flat finishes  
Aroflint®—room temperature curing phenolic  
Arapol®—alkyls and allied materials  
Arapol®—copolymer modified alkyls  
Ester Gums—all types  
Natural Resins—all standard grades

### INSECTICIDE MATERIALS

Alteltrin  
CPR Concentrates: Liquid & Dust  
Piperonyl Butoxide  
Piperonyl Cyclonene  
Pyrenone® Concentrates: Liquid & Dust  
Pyrethrum Products: Liquid and Dust  
Rotenone Products: Liquid and Dust

### INSECTIFUGE MATERIALS

Indalene®  
Triple-Mix Repellents

### INTERMEDIATES

Acetoacetanilide  
Acetoacet-ortho-chloroanilide  
Acetoacet-ortho-iodide  
Acetoacet-para-chloroanilide  
Ethyl Acetoacetate  
Ethyl Benzoylacetate  
Ethyl Sodium Oxalacetate  
Calcium Pantothenate (Feed Grade)  
Choline Chloride  
Curboy B-G® 80  
DL-Methionine (Feed Grade)  
Nicotin, U.S.P.  
Riboflavin Concentrates  
Special Liquid Curboy®  
U.S.I. Vitamin B<sub>12</sub> and Antibiotic Feed Supplements  
Vacatone® 40

### OTHER PRODUCTS

Acetaldehyde  
Caustic Soda  
Ethylene  
IPC (Isopropyl-N-Phenyl Carbamate)  
CIPC  
Liquid Chlorine  
Metallic Sodium  
Methionine (Pharm.)  
N-Acetyl DL-Methionine  
Nitrocellulose Solns.  
Propionaldehyde  
Propionic Acid  
Sulfuric Acid  
Urethan, U.S.P.  
\*Reg. U.S. Pat. Off.

# U.S.I. INDUSTRIAL CHEMICALS CO.

Division of National Distillers Products Corporation

120 BROADWAY, NEW YORK 5, N. Y.

BRANCHES IN ALL PRINCIPAL CITIES

## NEWSLETTER

Don't expect a cut in the corporate tax rates, currently at 52%. Continuing the present rate for another year is the key recommendation of the Senate Finance Committee in its first official disclosure of action on the tax revision bill.

Of special significance to the chemical industry, because of its fast growth, are recommendations dealing with the so-called "unreasonable accumulation" of undistributed profits. Both House and Senate action shifts the burden of proof from corporations, where it now lies, to the Internal Revenue Service.

•  
If you're trying to forecast demand for chemists and chemical engineers, you may get some help from new Bureau of Labor Statistics figures. BLS's first report, due early next month, will detail the past six years' employment of chemists, chemical engineers, and other technical personnel in the chemical, rubber and petroleum industries. There will also be a breakdown by function—viz., research, manufacturing, sales and administration.

A few weeks later the bureau will issue a comparison of these figures with such factors as company sales, earnings, research expenditures, capital outlays and industry employment. From these BLS hopes to derive correlations that can be used to forecast future manpower needs.

•  
Also concerned about people, as well as materials and processes, is the American Institute of Chemical Engineers, convening this week at Springfield, Mass. Two basic problems considered there: first, how to wean a fresh-out-of-college engineer away from the academic point of view, instill in him a dollars-and-cents industrial philosophy; second, how to make this young engineer a competent supervisor over a number of production workers, thereby achieving harmonious industrial relations.

•  
"Chemical Progress Week" was ushered in last Monday with as much fanfare and serious attention as its well-wishers could hope for. Newspapers as far-flung as the New York Times, the Memphis Commercial-Appeal, the Roanoke Times and the Nashville Banner carried stories. Early in the morning six presidents and board chairmen of Philadelphia chemical firms toured the city's plants and port facilities, met the mayor's representative and received a copy of the mayor proclamation. Cleveland industrialists watched their mayor sign a similar document.

The newspaper accounts, and the proclamations, stressed the material contributions made by the industry to the American standard of living, also emphasized defense aspects and the payrolls provided by local plants.

•  
The government's alcohol-from-wood-waste plant, built at Springfield, Ore., during World War II and now a white elephant on General Services Administration's hands, is now up for sale again. GSA rejected Western States Development Corp.'s \$186,000 high bid, offered to sell to Western States for a "fair market value" of \$400,000 but the firm wouldn't go that high.



The government's fast tax amortization program, while diminished in volume, is still far from dead. Item: the Office of Defense Mobilization's announcement this week of further certificates for synthetic ammonia (see p. 91).

But this isn't the only straw in the wind. Mobilizers are considering establishment of an expansion goal for nonfiber-use acrylonitrile, and a higher goal for polyethylene may be in the offing. Too, there's a chance that chemical storage facilities may be approved for fast write-offs. Petroleum storage has had such approval, and because the goal wasn't filled some of the uncertificated capacity was "borrowed" for chemical use. Now likely is either a further transfer or establishment of a new goal for chemical storage facilities.

•

Clarifying his position on private ownership of atomic energy patents, Congressman W. Sterling Cole, chairman of the Congressional Joint Committee on Atomic Energy, said early this week, "It has been my intention all along that the Atomic Energy Commission should have the right to acquire patents for peacetime use."

This is Cole's answer to critics of the pending revision of the Atomic Energy Act, who have charged that the revision would give private corporations an atomic monopoly since it grants companies "normal patent rights" on future developments in production of fissionable materials and other nonweapon technology.

•

The left-wing International Union of Mine, Mill & Smelter Workers (CW, May 1, p. 16) suffered a setback at Consolidated Mining & Smelting's Calgary ammonia plant. By a 2-1 margin, with 98% of the eligible voters casting ballots, employees ousted Mine-Mill, certified the International Chemical Workers' Union (AFL-TLC) as bargaining agent.

The plant was once solidly Mine-Mill, but ICWU gained a foothold three years ago when it became agent for 20 (out of 197) workers. Last year it was certified for about 60 additional employees, and now it's the agent for the entire plant.

•

There's still plenty of Yankee hustle in New England (see p. 26). Latest confirming evidence: Dewey and Almy's decision to expand capacity for its resin-impregnated storage battery separations. Plans call for enlargement of the Acton, Mass., plant itself as well as installation of additional equipment.

•

Cleveland housewives will have first crack at Procter & Gamble's new detergent, Dash, which is designed primarily for automatic washers.

A "new type detergent" providing "condensed suds," according to the label, Dash will come in both 24- and 60-oz packages.

•

Pockmarked windshields (CW, May 8, p. 16) can no longer be categorized along with flying saucers, as a science fantasy. Libbey-Owens-Ford's research director, George Watkins, studied hundreds of windshields from all over the country, now concludes that "the windshield damage . . . is nothing more than normal road wear, and the defects . . . are proportional to the mileage on the car." Watkins and his technical assistants could find no mysterious factors.

A Massillon, O., motorist found a grayish deposit on his windshield, alleged that it was "hot" to the touch. Turned out to be a piece of taffy candy.

. . . The Editors

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\*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products.



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Manufacturers over the nation have learned to eliminate the costly and inefficient method of handling bulk materials with conventional dump trucks, drivers and loading crews. You can equip one truck with a hydraulically operated Dempster-Dumpster. Then, inside or outside buildings at convenient accumulation points, you simply place detachable Dempster-Dumpster Containers, in capacities up to 4 times that of conventional dump truck bodies, with each designed to suit the materials to be handled—be they solids, liquids or dust . . . hot or cold . . . bulky, light or heavy. Containers shown at left, all handled

by one Dempster-Dumpster, are only a few of the many available or that can be built to meet your needs. The Dempster-Dumpster, operated by only one man, the driver, serves scores of containers . . . one after another, as shown below.

You eliminate trucks standing idle. You eliminate re-handling of materials. You eliminate loading crews. You increase efficiency, sanitation and good plantkeeping with this Dempster-Dumpster System—the lowest cost method of bulk materials handling ever devised. Write to us for complete information. Manufactured exclusively by Dempster Brothers, Inc.



**DEMPSTER BROTHERS, 254 Dempster Bldg., Knoxville 17, Tenn.**



## BUSINESS &amp; INDUSTRY. . . .

**Penicillin Fracas**

A legal battle is shaping up over who'll get the royalties on procaine penicillin, which accounts for close to 70% of U.S. penicillin production. The stake is large: \$250 million sales in the last four years.

Physiological Chemicals Co. (New Rochelle, N.Y.) holds a recently granted patent (U.S. 2,676,961) on "procaine salt of penicillin," has filed suit against Eli Lilly & Co. (Indianapolis) charging infringement and unfair competition, asks \$20 million damages and invalidation of the Lilly patent (U.S. 2,515,898).

Lilly, whose patent covers "solid procaine penicillin and its use in therapeutic compositions," has filed countersuits calling for invalidation of Physiological's patent, contending that Physiological's 1945 patent application did not claim solid procaine penicillin and that Lilly filed in 1947—before the New Rochelle firm entered its successful 1948 application. All present producers are licensed by Lilly.

**Fight for Fair Shake**

Industry is fighting this week for what it feels would be a fair shake in the bill to permit private enterprise to build and operate atomic plants.

As the Joint Congressional Committee on Atomic Energy opened hearings in Washington, witnesses for industry hammered at what they consider the bill's shortcomings—its provisions on licensing, patents, and ownership of nuclear fuels.

The bill will be revised following the current hearings, then further pruned and polished after additional brief hearings. Rep. W. Sterling Cole (R., N.Y.), chairman of the committee, expects the bill to reach House and Senate before the present session ends.

**Prevents Fuel Ownership:** Representatives of the Dow Chemical-Detroit Edison nuclear power project were among the first to testify, approving the bill in general but urging some fundamental changes. Paul McQuillen, head of the legal committee of the Dow-Detroit group, zeroed in his main criticisms on two points:

- The federal government would



REP. COLE: His committee heeds industry's complaints on revising atomic law.

retain title to all nuclear fuel materials produced or used at nuclear plants.

- Licensing of firms to develop, build and operate nuclear plants would be difficult to arrange, easy to annul.

Privately owned firms, he said, would run into difficulty trying to finance atomic power plants unless they can acquire full title to fuel materials.

"The business and financial communities are accustomed to dealing with ownership of property as a basis for investment or as security for borrowed money, and legal rights and procedures have been developed for dealing with such property rights," McQuillen added.

**Licensing Cumbersome:** As the bill stands, industry men said, a firm would need at least nine different licenses to develop, build and operate a nuclear power plant. More serious: a license could be amended or revoked, according to McQuillen, "for almost any reason." Revisions to make licensing less cumbersome were urged, together with a provision that no license be revoked except for "wilful violation."

Other lawyer witnesses attacked the standard patent provisions of the bill. They argued that the companies al-

ready in the nuclear power field have the jump in getting patents on fundamental inventions and discoveries. Unless a nonexclusive patenting procedure is evolved for the first few years, they contended, firms new to atomic industry will run up against virtually insurmountable obstacles.

But a counterargument came quickly from the president of a small company, who favors extension of the regular patent law to the new field. John Menke of Nuclear Development Associates, White Plains, N.Y., told the committee he'd rather have the right to get one atomic energy patent of his own than to get hold of 1,000 ideas patented by large corporations.

**Data, Not Dominance**

There's reassurance for private industry in the U.S. Bureau of Mines' newest report—out last week—on its highly controversial program on synthetic fuels and chemicals from oil shale and coal.

Previously, that program had been conducted in such a way as to make many suspect that it was leading up to large-scale governmental operations in that budding business. Chemical and petrochemical companies that otherwise might have invested in research and development work on shale and coal couldn't be sure that they wouldn't wind up losing out to the U.S. government in production or sales.

Now, promises Interior Secretary Douglas McKay, the bureau is shifting emphasis away from actual production. The new look is toward fundamental laboratory and pilot-plant research. The aim: to find a basic set of engineering data for use by private industry; not to set up Uncle Sam as the dominant figure in coal and shale processing.

McKay, who ordered the closing of two coal-to-oil plants last June, is optimistic about the value of the bureau's research, particularly that being done on oil shale at Rifle, Colo., and Laramie, Wyo. Processes demonstrated there, he comments, "might have immediate economic value for producing chemicals." One fast-cycle, high-temperature retort is said to yield 95% aromatics, rather than olefins and saturated hydrocarbons.



CLOSING RANKS: John Olin (left), new chairman of board, and Thomas Nichols, president.

## More Than Meets the Eye

Strictly from a sales angle, last week's merger of Mathieson Chemical Corp. and Olin Industries, is an impressive union. Based on 1953 figures, the combined corporation should garner total sales over \$500 million this year, will claim total assets at least equal to it. But, from the standpoint of potential growth, there's more to the fusion than meets the eye. It's a big stride forward in the Mathieson plan to become a leading factor in U.S. industry; it satisfies a long-standing dream—a major leap into the "glittering field" of chemical production.

In size the new partners are virtually even. Both were founded in 1882; both employ about 18,000 persons. Their major interests, however, have touched but lightly. Mathieson concerns itself chiefly with industrial, agricultural and petrochemicals, and through its E. R. Squibb Division—drugs and pharmaceuticals. Olin (outgrowth of the gunpowder trust case around the turn of the century), fabricates metals, makes industrial explosives, cellophane, polyethylene, and specialty—cigarette—papers.

That immediately the joint company will find it expedient to supply its own raw materials (chlorine and caustic from Mathieson plants to Olin's cellophane facilities, and ethylene from Mathieson's Doe Run Works to the much-discussed Olin polyethylene plant) is obvious.

But the long-range potential is also intriguing. To cite a few instances where the Olin Mathieson pooled resources will spur expansion plans:

- Olin has long been coveting a step into hydrocarbon production,\* would like to fan out from its first link with the pharmaceutical, dye-stuffs, plastics, synthetic fiber industries—which started with its hydrazine venture. Mathieson's resources will supply the raw material backing just as its chlorine, ammonia, natural gas supplies bulwarked Olin's hydrazine research last year.

- Olin, a tightly held family company (there's a voting trust comprised of John Olin, Spencer Olin, and

\*It's been operating four pilot plants working on petrochemical and hydrocarbon problems.

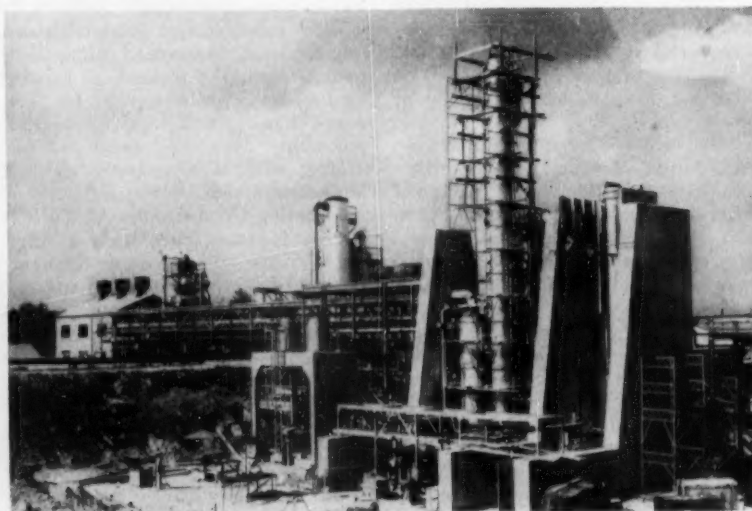
John Hanes that holds 58% of the common stock outstanding) has often admitted that the basic obstacle to its achieving any prolonged growth is the problem of diversification. Bread and butter for years has been ammunition sales, now limited by a dwindling game supply, and mining facilities, stymied by a lack of good new properties to exploit. And Fred Olson's (vice-president in charge of research and development) objective—a big chunk of the cellophane business—couldn't be realized.

So the Olin problem in recent years has been basically one of not knowing which road to take with its investable capital "in a way in which its impact will best be felt." John Olin, it's known, has steadfastly held out for an immediate investment of all available capital "menaced by inflation"; Hanes wanted a broader base for operations.

The Mathieson merger will eventually answer both demands—at one and the same time.

- Mathieson's growth pattern, since the advent of Thomas Nichols in 1947 has basically been in the direction of "getting closer to the consumer." A broader position in inorganic chemicals was followed up by expansion of organic operations and a jump into pharmaceuticals (through the acquisition of Squibb). Merger with Olin would seem (for the moment at least) to almost complete the top-to-bottom integration.

And although it's still devoid of large intermediate producing facilities, Mathieson today is approaching the position in the chemical industry its management is charting for it.



FIRST COOPERATION: At Lake Charles, La., Matholin produces hydrazine.

## To Our Patrons

When you have a prescription to be filled, we shall be glad to discuss its cost. We invite frank discussion because our prescription prices are based upon a formula which is fair to all.

HOFFMANN-LA ROCHE'S PLACARD: Invitation to frankness is a . . .

## Prescription for Druggists

The American Pharmaceutical Manufacturers' Assn. has finally decided to do something about the double-barrel complaint by the public that it is being gouged by the drug industry. From one barrel: the charge that the manufacturer puts exorbitant price tags on its products—especially antibiotics. From the second barrel: the charge that the retail pharmacist's prescription fee is a fee for imaginary services, the mortar and pestle an empty symbol of a now unused skill. (According to industry figures, the druggist actually compounded 90% of his medicines 50 years ago, 20% five years ago, only 10-12% today.)

"The prescription dollar," says Robert Hardt, new president of APMA and vice-president of Hoffmann-La Roche, "is perhaps the biggest bargain dollar we can spend, but unfortunately the public doesn't know it."

Hardt charges off public misunderstanding to two fundamentals: (1) failure of pharmacists and the pharmaceutical industry to communicate the facts to their customers; and (2) a psychological problem—people just don't like to pay for something they didn't want in the first place, i.e., medicine.

Hardt and his own company have already kicked off the educational campaign. Taking a cue from the American Medical Assn., they began distributing last year 2,000 placards (see cut above) to druggists all over the country. The enthusiastic response convinced Hardt that the druggist is more concerned about customer suspicion than about the unwritten law that discussion of prices and professional dignity don't mix. The American College of Apothecaries has followed Hoffmann-La

Roche's lead, is now carrying on a placard program of its own.

Now Hardt will urge APMA to take the next step soon: preparation of a facts booklet to be stuffed in prescription packages, and placed strategically in doctors' waiting rooms.

Obviously worried by the charge that he does nothing but pass pre-compounded drugs over the counter, one druggist pointed out to CW that he performs three distinct services when he fills a prescription:

- He operates as a check and balance on the physician by virtue of his professional knowledge. Just as the patient demands the assurance that his doctor is competent enough to prescribe proper treatment, so he demands the assurance that his druggist can protect him against error in filling the prescription.

- As anyone knows who has ever read a murder mystery or watched TV, the pharmacist must keep a complicated record of everything he sells under prescription—for the convenience of his customer as well as for inspection by law enforcement officers.

- He must package and label correctly every prescription item—usually in his own container. Often he has to dispense drugs in small dosages, sometimes from stock he will never use again, and cannot return to the manufacturer when it deteriorates.

"Americans have the best drug-dispensing system in the world," said another druggist. "The physician has freedom of choice in prescribing, and his patient can get what he wants when he wants it at any corner drug-store. But this means we druggists have to carry a large, slow-moving, expensive inventory."

Because of the growing complex-

ity of the whole therapeutic armamentarium, the druggist, sums up APMA's chief, "is no longer the handmaiden of the physician, but a therapeutic consultant."

As for drug prices, manufacturers say the trouble is that the public does not see the whole picture.

"The over-all cost of medical care is not nearly what it used to be," says an executive of one major pharmaceutical house. The reason for the general impression of unfair prices in the last few years is the prominence of new drugs like the antibiotics, drugs not even on the market ten years ago."

The APMA booklet will probably make the following points:

- So-called "miracle" drugs often enable the patient to avoid the heavy cost of hospitalization and surgery. (For some interesting figures, see Special CW Report, May 15, '54.) Example: for the surgeon's fee, the scar and the hospital expenses, the mastoid victim nowadays substitutes a shot or so of penicillin, pays a total of \$25 instead of \$250.

- The tremendous cost of long years of intensive research behind the development of every drug may not be apparent, but it's real.

- The accusation of overpricing in antibiotics simply does not stand up against the facts. The price of 100,000 units of penicillin was: \$18 in 1943; \$4.99 in 1944; 30¢ in 1948; 15¢ in 1952; and finally an incredible 8¢ in 1954. Streptomycin, selling in 1946 for \$26.67 was down by April of this year to 36¢.

The pharmaceutical industry feels



APMA'S HARDT: "Today's druggist . . . no longer the physician's handmaiden."



## BUSINESS & INDUSTRY . . . . .

that it does not have to apologize for its prices. But APMA is trying to convince its members that "it is not enough to have a clear conscience; it is necessary to interpret the story of pharmaceutical products to the public."

### COMPANIES . . . . .

Both W. R. Grace & Co. and Davison Chemical Co. stockholders last week approved the merger of Davison into Grace, and authorized the issuance of up to 639,499 additional shares of common stock to carry out terms of the agreement.

The Glidden Co. has acquired all assets of the Mound City Paint & Color Co., St. Louis, and will operate its newly purchased property as a company division.

Ashland Oil & Refining Co., Ashland, Ky., has concluded licensing agreements with the Houdry Process Corp., Philadelphia involving installation of a 6,000 bbl./day Houdriformer at its Catlettsburg, Ky., refinery, to produce high-grade naphtha, specialty solvents.

First step in the moves necessary to enable Aero Metals, Inc. to build a titanium reduction plant at Boulder City, Colo., has been taken. At a special meeting of the city council, permission was granted for company officials to lease 25 acres of land not far from the U.S. Bureau of Mines Station. The lease, however, will not be granted until approved by Bureau of Reclamation officials, since Boulder City is still a government municipality. Initially, capacity should approach a ton of sponge a day, employ 80 men with a payroll of \$600,000/year.

Construction contracts (\$200,000) to build a sulfur refinery in Winnemucca County, Nevada, have been let by Continental Sulphur and Phosphate Corp., Dallas, to American Sulphur and Refining Corp., Los Angeles. Production (at a rate of between 50-75 tons daily) should begin by November.

### EXPANSION . . . . .

**Natural Gas:** Texas Gulf Producing Co. has let a contract to O. L. Olsen Co., Houston, to build a \$2-million natural gas plant in the Headlee field, Ector County, Tex. Construction will start in July; operation's promised by the end of the year. Initial capacity: 15 million cu. ft. of gas daily, with the

expectation of expansion to 35 million cu. ft. early in 1956. Texas Gulf (the operator), will have an 80% interest in the new facilities; Tide Water Associated Oil Co. holds the other 20%.

**Oil:** Wood River Oil and Refining Co., Wichita, Kan. will build a \$10-million oil refinery at Calumet City, Ill.—Prime Oil's first operation in the Chicago area. Site for the refinery is 155 acres; capacity is planned at 15,000 bbls./day.

**Rare Metals:** The Nuclear Magnetic Mining Co. (which holds leases on coastal sands in four Florida counties) will build a \$250,000 plant near St. Augustine to recover ores found offshore. The company holds a five-year state permit to exploit ilmenite, zircon, rutile, monazite deposits.

**Salt:** Leslie Salt Co., despite a good harvest of 900,000 tons of sea salt from the San Francisco Bay area, reports it will have to bring in another

130,000 tons from the Bahamas this year to fill its orders. Result: company officials are developing new tideland salt facilities in Napa, Sonoma, and Solano counties—will increase domestic production by 1958 to 1.5 million tons.

**Nitric Acid:** Spencer Chemical Co. has embarked on a \$1.7-million expansion of nitric acid and ammoniating facilities at Henderson, Ky. Present plans call for a transfer of ammoniating equipment from Charles-town, Ind., to the Henderson site, but nitric acid facilities will be entirely new. No expansion of anhydrous ammonia capacity is planned at this time.

**Ethanolamines:** Jefferson Chemical Co., Inc., will increase production facilities of ethanolamines at its Port Neches plant by 50%. It's expected that a large proportion of the additional output will go into the manufacture of morpholine.



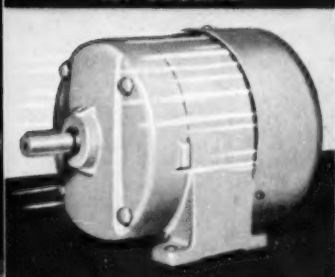
### After 30 Years—A Seaway

HELD ALOFT for all to see is the St. Lawrence Seaway bill that will bring ocean shipping to chemical plants along the great Lakes (see p. 74). With President Eisenhower as he signed the bill into law last

week: (left to right) seated, Sen. Alexander Wiley (R., Wis.); standing, Canadian Ambassador A. P. T. Heeney, Sen. George Aiken (R., Vt.) and Rep. John Blatnik (D., Minn.).

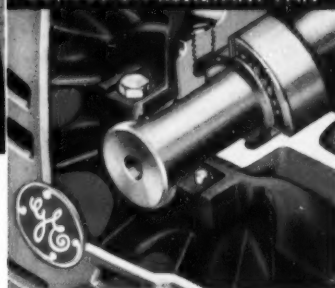
**TRI 55 CLAD** THE LEADER IN MODERN MOTOR DESIGN

#### JET COOLING



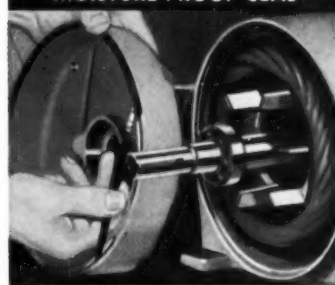
A BLANKET OF AIR spreads over entire surface, cooling and cleaning the new Tri/Clad '55'.

#### CORROSION-RESISTANT FAN



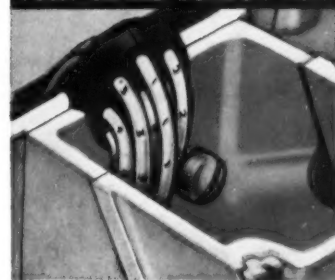
TEXTOLITE\* FAN resists acids, alkalis . . . is one of chemistry's vital contributions to the motor.

#### MOISTURE-PROOF SEAL



SEALING COMPOUND applied on rabbet fits helps to seal out corrosives, moisture and dirt.

#### FULLY SEALED CONDUIT BOX



RUBBER GASKET waterproofs lead entry to stator of motor. Conduit box is also gasketed.

Now, the new chemical motor . . .

## G-E **TRI 55 CLAD** enclosed motor resists corrosion and moisture!

General Electric's all-new Tri/Clad '55' enclosed motor meets the tough requirements of the chemical industry. Truly a chemical motor, the Tri/Clad '55' takes advantage of the industry's latest materials including silicone, polyester film, Textolite\* and neoprene.

Because it's better protected, this standard motor gives you longer motor life in tough jobs. Frame and end shields are rust-resistant cast iron. Carefully machined rabbet fits are tightly sealed. Rubber gasket protects lead entry to stator.

New insulation materials also add life to this motor. A silicone Dri-film\* coating on the stator sheds water—reduces insulation failure due to moisture. New polyester-film for slot and phase insulation is eight times stronger.

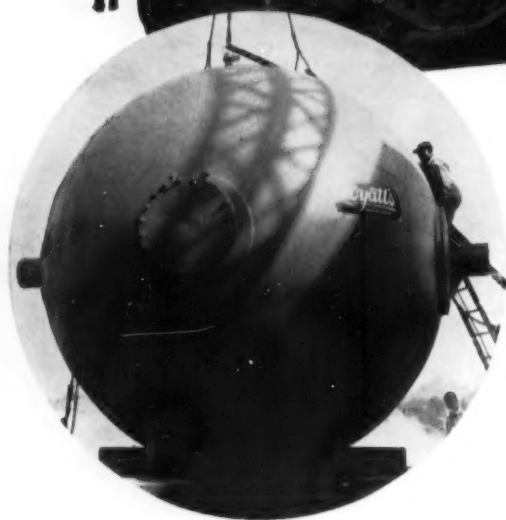
General Electric Tri/Clad '55' motors are available now in many ratings. The entire line, 1 to 30 hp a-c motors, available soon. For full details contact your nearby G-E Apparatus Sales Office or G-E Motor Supplier today. For bulletins on the complete line, write General Electric Company, Section 648-8, Schenectady 5, New York.

\*Reg. trade-mark of General Electric Co.

*Progress is our most important product*

**GENERAL  ELECTRIC**

# BIG in Promise



These digesters, of  $\frac{7}{8}$ " plate, each 15'6" I.D., weight 32,450 pounds, served in producing the first domestic paper from sugar cane stalk.

The plant, designed and built by Brown & Root, Inc., for Valentine Pulp and Paper Company has daily capacity for approximately 50 tons. The venture is Big in Promise since within 100 miles of Lockport, Louisiana, 750,000 tons of bagasse are available each year and this raw product yields up to 50 percent in finished paper.

Wyatt Metal & Boiler Works is proud to have a part in this promise of converting agricultural waste into useful merchandise.

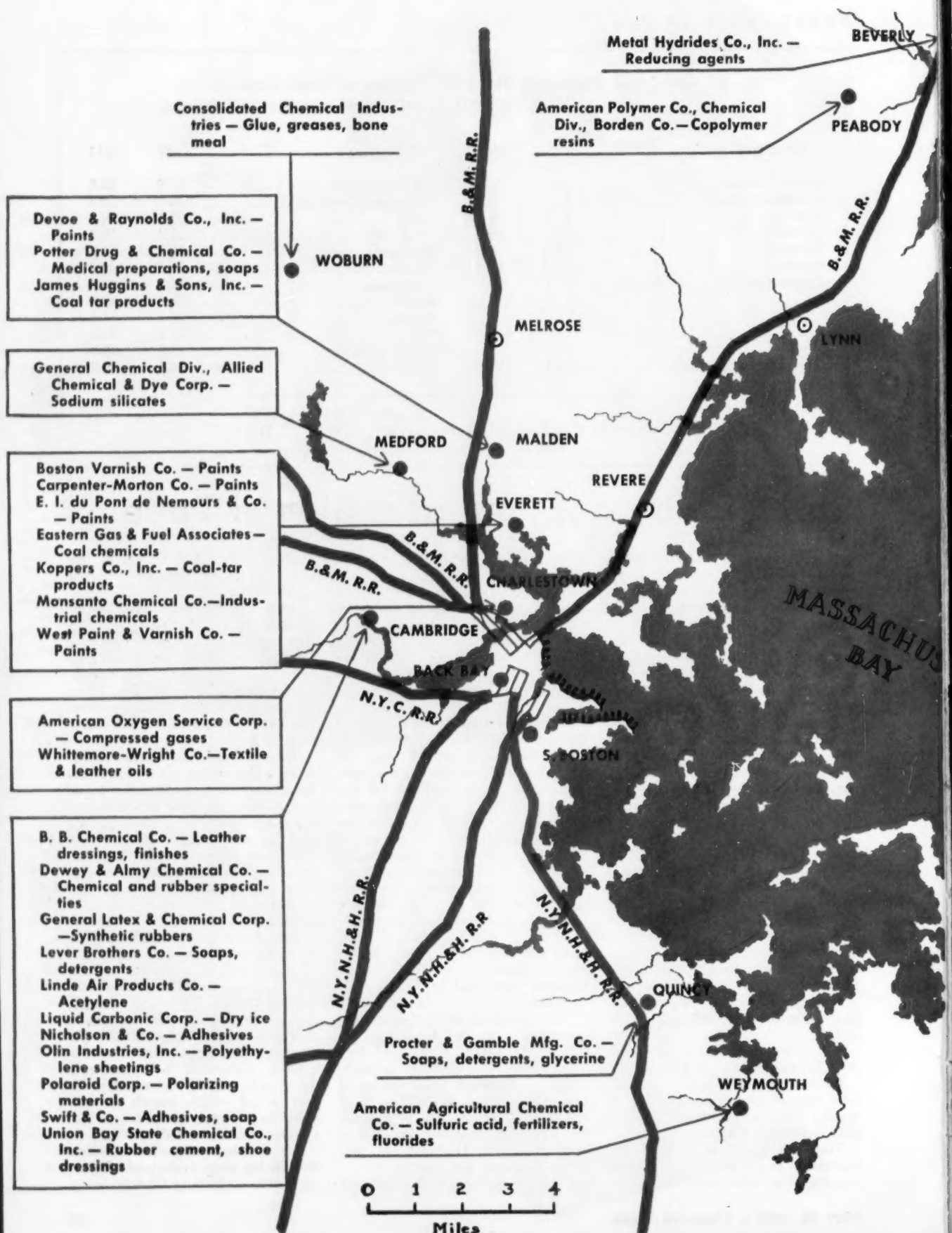


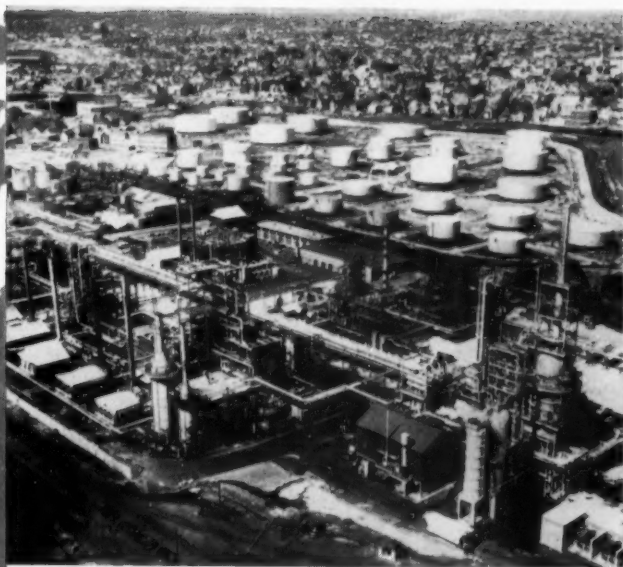
MANUFACTURERS AND ERECTORS SINCE 1913



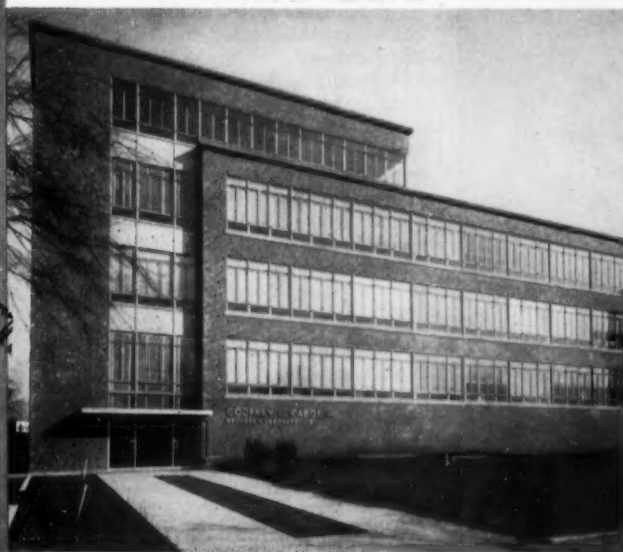
### Debt and Preferred Stock as Percent of Total Capital (20 Chemical Companies)

Company	Up	1952	1953	Company	Down	1952	1953
Allied Chemical & Dye		14.9	36.8	Air Reduction		41.9	40.6
Diamond Alkali		31.2	40.0	American Cyanamid		34.5	33.3
Dow		41.4	49.1	Atlas		37.3	36.0
Hooker		52.4	59.5	Du Pont		17.4	16.2
Pennsalt		9.1	9.8	Hercules		12.2	11.7
Spencer		66.0	69.8	Heyden		57.9	49.0
Union Carbide		28.1	33.8	Mathieson		44.3	42.0
				Merck		38.8	38.6
				Monsanto		36.1	34.7
				Pfizer		22.6	21.6
				Rohm & Haas		25.8	23.3
				Victor		58.1	56.2





**OIL, COAL PROCESSORS:** In Everett's industrial complex, Esso's expanding refinery and Eastern Gas & Fuel's coke plant.



**RESEARCH, PRODUCTION SITES:** At research-rich Cambridge, Cabot's laboratories and Dewey and Almy's plant and office.

## Business at Boston: Static but Healthy

To industrial firms looking for new manufacturing outposts — at first glance, anyway—the economy of New England appears to be as bleak and austere as its stern and rockbound coast.

In recent years, the notion that "New England has an industrial past but no future" has become fairly widespread. The area has little in the way of raw materials, some of its textile companies have migrated South, and with the New England population leveling off, there's not

much prospect that other new industries will be moving in as potential buyers of chemicals.

Loyal New Englanders have to admit that the six-state area's population has not (on a percentile basis) been keeping step with the rest of the country.\*

**Good Cheer Prevails:** But this week, chemical industry men in the Boston vicinity are agreed that while

there isn't much opportunity for expansion right now, there isn't any cause for tears. "Our industry," they assured CW, "is rather static but healthy."

And they aren't despondent about the future, either. They can point to any number of facts that augur well for a higher and more prosperous level of industrial activity in and around Boston in coming years.

For one thing, there's the "Survey of Industrial Opportunities in New England," prepared by Arthur D.

\*Population increases from 1940 to 1950—U.S. 14.5%, New England 10.4%; from 1910 to 1950—U.S. 63.8%, New England 42.1%.





**MORE FOR MONSANTO:** Under company's scrutiny, expansion at Everett plant.



**P&G PRODUCER:** With new building in use, Quincy plant capacity is doubled.

Little, Inc. (Cambridge, Mass.) for the Federal Reserve Bank of Boston. The ADL staff finds that: "There are a few products such as rayon, drugs and pharmaceuticals, and resinous materials in which New England is not at a competitive disadvantage. It would appear possible that management and capital could successfully develop some profitable plants in New England, at least to the point of supplying the demand of the area."

**More Optimism:** This hopeful outlook is shared by the businessmen who furnish the region with most of the energy needed by industry. Algonquin Gas Transmission Co. has started piping in natural gas from the cross-country pipelines of Texas Eastern Transmission Corp.; Boston Edison Co. paid out \$22.5 million in 1952 and \$22.6 million in 1953 for

construction and installations (mainly for new generating units); and Esso Standard Oil completed last fall a new 24,000-bbl. fluid catalytic cracking unit at its multimillion-dollar oil refinery at Everett, is considering plans to add a hydroformer later on.

What does Boston have to offer chemical process companies? Worth pondering are the entries on this side of the ledger:

- Ocean shipping facilities through one of the world's great seaports—the nearest big U.S. port to Europe and to the St. Lawrence-Great Lakes waterway.

- Opportunity to sell directly to industries that make Boston a major source of supply for woolens, worsteds, shoes, furniture, sea food, writing and printing inks, adhesives and other end use products.

- Access to the New England home market—population now approximately 9½ million.

- Large quantities of soft water with low mineral content.

- A labor supply—now expanded because of textile company moves—that the Little report credits with a high level of skill, a satisfactory record of industrial relations, and pay scales no higher than those of principal competing areas.

- Plant sites at suburban locations, outside the high-rent, high-tax metropolitan districts. (Several Boston real estate firms are sponsoring four planned industrial centers on the city's outskirts; one concern even lines up investors, architects, engineers, contractors, lawyers and industrial development specialists for manufacturing clients.)

- Notable facilities for chemical research, with world-renowned Massachusetts Institute of Technology at hand to back up industrial research and to provide highly trained scientific personnel.

- Proximity to prospective large-scale investors—New England's famous banks and insurance companies.

- A welcome and a helping hand from the state and the community for any new industrial venture. During the past year, the Massachusetts legislature created the state Dept. of Commerce, established the Massachusetts Business Development Corp.

**No Chemical Retreat:** Officials of chemical process companies in the Boston area say they have no intention of giving up their Massachusetts facilities. And while moderate retrenchment has been the trend for the past year, some chemical concerns are now thinking of near-future growth.

According to the Federal Reserve Bank of Boston, the number of new jobs in durable-goods industries in New England has more than offset the loss of textile industry jobs in the past six years. And while textile employment has dwindled by about 68,000 since 1947, it still provides some 220,000 jobs in the area. Thus there's still a sizable market for chemicals in New England; it's estimated that Monsanto's versatile chemical plant in Everett furnished something like \$2½ million worth of chemicals to the New England textile industry in 1952.

For chemical concerns that can diversify their operations and change with the times, hard-core New Englanders insist that their part of the country is in no danger of becoming an industrial graveyard.

# N O W

## CANCO SAVES YOU UP TO 35% on pressure packages!



Canco's 4-way economy offers you these outstanding advantages:

1. **Lower initial cost**—Canco containers themselves actually cost you less because they are mass-produced on standard high-speed can manufacturing equipment.
2. **More economical to use**—container tops can be assembled directly to valves. No expensive extra parts are required in your packaging operation.
3. **Canco works directly** with valve manufacturers and contract loaders to develop the most economical and efficient package for your product.
4. **Canco's strategically** located facilities, throughout the United States, assure prompt, efficient service in all phases of pressure packaging.



### AMERICAN CAN COMPANY

New York, Chicago, San Francisco; Hamilton, Canada

Whatever your product—whether it sprays, mists or foams—Canco's pressure containers, designed to accommodate a wide variety of valves, can save you up to 35% on your package costs!



CLEVELAND'S MAN-MADE CATAclysm: After sewer explosion blamed on oil and chemical fumes, Cleveland is leading . . .

## Big Towns' Push for Disposal Policing

**Chalk up another chore for big-city cops: keeping an eye on industry's waste disposal practices.**

In future years, plants that make, use, sell or store chemical or oil products and that are located in large cities can expect antipollution ordinances to be bolstered with strict new amendments aimed at preventing the formation of explosive gas mixtures in city sewers.

Some of the new regulations—which in many cases will require substantial outlays for new equipment for waste disposal and for flammability testing—are already in effect, in varying forms, in a few metropolitan centers like Los Angeles and Pittsburgh. They're likely to sprout up next in Cleveland, where residents are nervously eager to forestall a repeat performance of the kind of explosion that plowed up blocks of the city's streets last fall.\*

**Chemicals Suspected:** In trying to assess responsibility for the blast, three Case Institute professors—retained by Cleveland and Lakewood to investigate the detonation—conclude that the evidence points to flammable industrial wastes, gasoline leakage from service stations, or both. This does not put the finger on any one industry, but it's a noteworthy and obvious fact that many of the 194 establishments that were using flammable materials and that were connected to the West 117 St. trunk sewer must have been using numerous chemical and petrochemical products: 28 cleaning and dyeing works, 32 auto repair and

paint shops, 14 machine tool shops, 39 filling stations.

Among those 194 establishments, probably the biggest users of chemical materials were three makers of paints and finishes. One of these three was discharging about 900 gal./week from varnish scrubbing, floor drains and yard drainage; paint scrubbing deposits, tank cleanings and other waste solvents were picked up and removed by contractors for recovery.

Materials used at these three paint plants included, of course, naphtha, xylol, toluol, linseed oil, turpentine, alcohols, resins, and acetates.

The committee commented that the paint makers maintain an "excellent state of housekeeping"; at one of these plants, the professors expressed the conviction that "the only chance for escape of flammables would be accidental spillage."

So a new responsibility may devolve upon chemical manufacturing companies—that of advising customers on safe, inexpensive disposal methods. Occasionally, the supplier of chemicals might be asked to devise and furnish new solvents or additives that would help skirt the problem of disposing of combustibles.

**Caustic Bypassed:** One weak spot in Cleveland's present system of handling industrial sewage, the committee asserts, is that existing city ordinances—which, in general terms, prohibit the discharge of corrosive, toxic and flammable substances into the city sewers—are not observed. The professors find that in some cases, workmen have been disregarding man-

agement's instructions on safe handling of flammables; for example, cleaning tanks with solvent (instead of caustic) and then dumping the solvent into the sewers.

"There is enough in the way of undetected losses of flammables," the committee declares, "and in the way of flammables put knowingly into the sewers, to account for hazardous atmospheres in the sewers."

Probably because of what the committee calls "understandable ignorance" about how small quantities of flammables from many shops can have a cumulative effect in sewers, there has been "too much carelessness" among people in industry.

**Testing and Treatment:** Essence of the committee's recommendations is that industrial plants channeling wastes into the city sewers would be required to have:

- "Approved types of gauging and sampling manholes at approved locations."

- "Adequate provision for waste treatment where needed."

Another committee proposal: That some municipal agency conduct a city-wide survey of disposal problems at all industrial and commercial establishments using flammables. This agency also would study other cities' control measures and formulate suitable rules for Cleveland.

"It is suggested," the committee adds, "that representatives of industry, disinterested parties and underwriters have a voice in the formulation of policy."

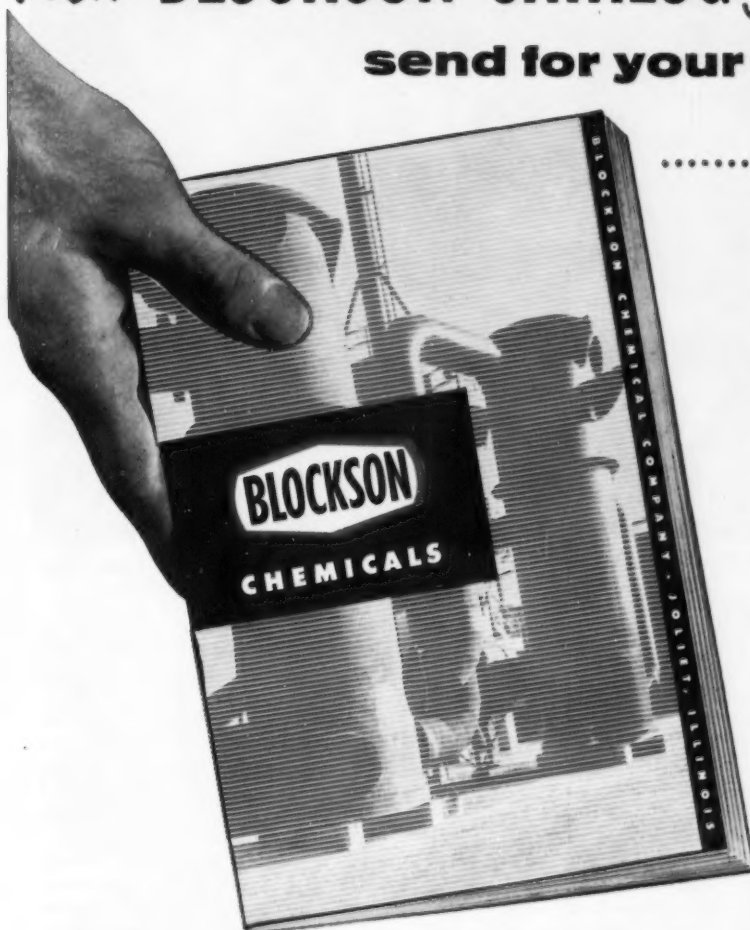
For producers of basic chemicals

\* Casualties, 1 dead, 64 injured; property damage estimated at up to \$6 million, including \$1.5 million for sewers, streets, utilities.



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The new catalog provides complete, easy-to-read data—formulas, properties, uses, etc.—on each Blockson Chemical listed at right. The revised section on *classification of Sodium Polyphosphates* will prove helpful in selecting the proper Sodium Polyphosphate for your requirements.

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and many specialty products, this situation may present an opportunity for new and effective efforts in community relations. A producer who gives his customers advice and aid on disposal problems can assert that—for the public's protection—he's marketing safety in the same package with his useful chemicals.

## LABOR . . . . .

**Strike Stalled:** Approximately 1,700 employees at Monsanto's Krummrich plant in Monsanto, Ill., having declined the company's offer of a 5¢/hour wage increase, were set to strike last week while a federal conciliator was trying to get more time for bargaining. Conciliator A. E. Johnson got the International Chemical Workers Union (AFL) to agree to one postponement of the strike deadline. Present wage rates reportedly range from \$1.59 to \$2.30/hour.

**Raids on Leftists:** Chemical companies that have contracts with any of the 10 "left-wing" labor unions that were expelled from the CIO in 1949-'50 can expect other unions to make more aggressive raiding attempts following a recent decision by the National Labor Relations Board. The Board says it now will order new bargaining elections whenever a local union votes to disaffiliate with an expelled national union for the same reason that the CIO (or other union federation) had ousted the national union. NLRB adds that this ruling will hold even when there's a collective bargaining contract in effect between the employer and the national union.

**Steady on Course:** After the labor committees of both the Senate and the House of Representatives had spent weeks on hearings, and despite the earnest recommendations of President Eisenhower that the Taft-Hartley labor-management relations law be amended, the 83rd Congress is giving up on its efforts to revise the act.

Winning continuance of the law "as is" were the Democrats in the Senate, who had various reasons for opposing the Administration on this issue. For Northern Democrats, like New York's Senator Lehman, the proposed amendments seemed too harsh toward unions; to Southern Democrats, the bills appeared too liberal in some respects. Nearly all Democrats are counting on making some kind of political capital out of the



**STATUS QUO CONTINUES:** To Democrats\*, unchanged labor law looks safest.

Taft-Hartley situation in this fall's campaigns.

**Unions Score at Polls:** New local unions are being organized at four chemical plants where the International Chemical Workers Union (AFL) recently won collective bargaining polls conducted by NLRB. Plants at which ICWU will become bargaining agent: Foster Grant Co.'s new styrene plant, Baton Rouge, La.; Armour Chemical Co., McCook, Ill.; Borden Co.'s chemical division, Demopolis, Ala.; and Minden Cotton Oil & Fertilizer, Minden, La.

**Umpire Joins Management:** Edward Cushman, who has served for the past four years as permanent umpire between Parke, Davis & Co. and the United Gas, Coke & Chemical Workers (CIO), has been appointed director of industrial relations for American Motors Corp.

**Challenge to Engineers:** Engineers must decide whether they want to continue as members of a profession or whether they will "follow the siren call of those who would lead us on the rocks of nonprofessionalism," delegates to the annual convention of the New York State Society of Professional Engineers were told last week. T. Carr Forrest, Jr., president of the National Society of Professional Engineers, warned that many engineers have aligned with labor unions at the expense of their identification with Management.

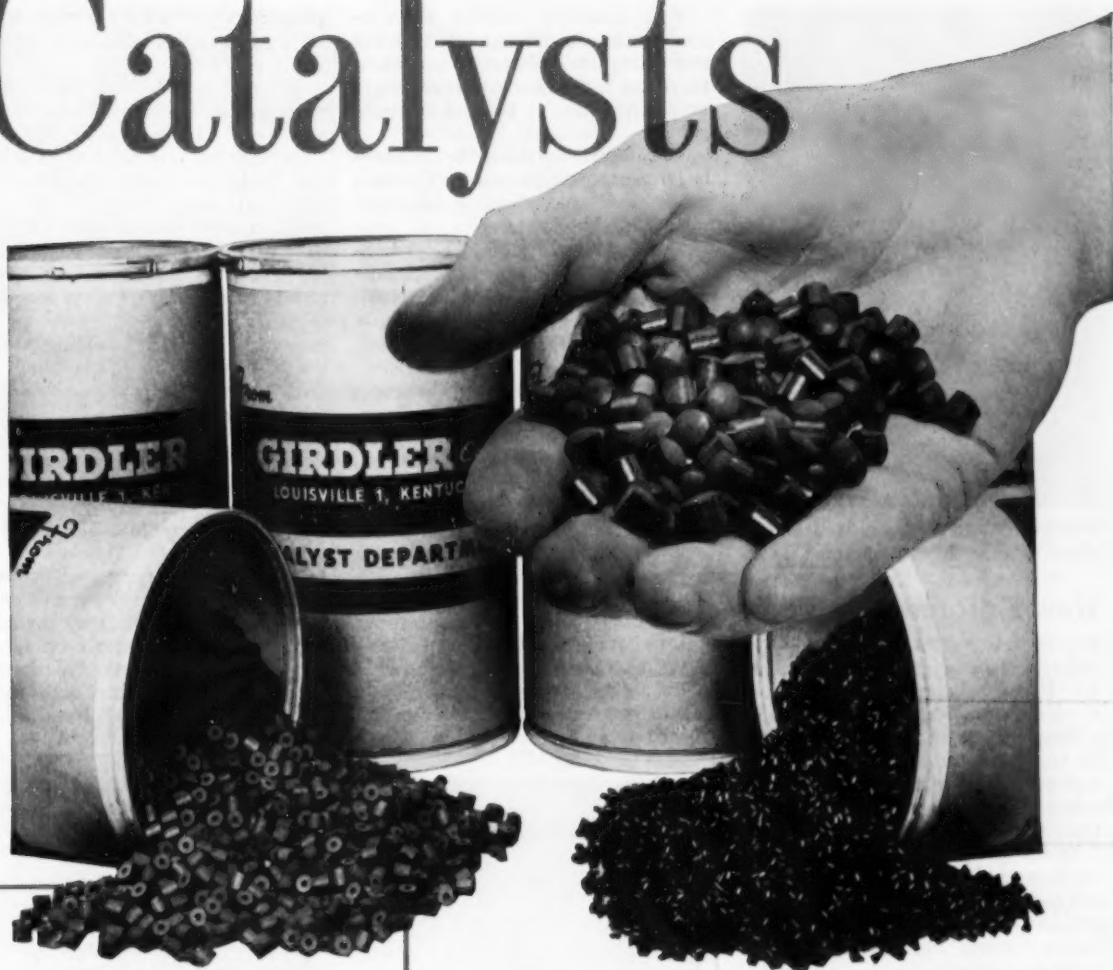
\* Led by Senators George Smathers (Fla.), Lyndon Johnson (Texas), Lister Hill (Ala.).

**Frequent Reminders:** A company should analyze every proposed fringe benefit from the standpoint of principle, cost precedent and administration before agreeing to put the new benefit in its labor contract, says Hotpoint's Vice President W. A. Kissock in a new American Management Assn. publication, "Industry at the Bargaining Table." After adopting a benefit program, management should continually "merchandise" the package to employees, in order to secure a fair return on the company's investment in its workers. "We must repeatedly tell them and sell them," he writes.



**HOTPOINT'S KISSOCK:** To win employees' faith, "tell them and sell them."

# Catalysts



## TYPICAL RESULTS

**MORE AMMONIA** was required by a large producer, but without additional expansion of facilities. Girdler was contacted, began its research and development, formulated two special, highly active catalysts, G-19 and G-3. The result was 75% additional ammonia output . . . at no sacrifice in quality, and requiring not a dollar of extra investment in plant equipment.

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FTC's HOWREY: Wants a new program to sharpen enforcement.

## New Enforcement Tack

In a drive to put teeth in its project to enforce compliance with its orders, the Federal Trade Commission last week was appraising the findings of a three-man committee on how best to tackle the problem. Major difficulty: the need to check on court and commission orders for possible violations of the law.

In the past, FTC's official position has been that it profits more (considering its limited funds) from the prosecution of *new* cases than spending its lawyers' time (and the commission's money) checking on orders handed down in years past. But FTC Chairman Edward Howrey (a Republican and former antitrust specialist) isn't convinced, and last September named a committee to reconsider ways to improve compliance. Since FTC currently has 4,500 cease and desist orders outstanding (not to mention 8,400 stipulations to stop certain practices, and 180 sets of trade practice rules to be checked), the importance of simplifying whatever system is to be adopted is obvious.

Although no official indication of what's forthcoming has yet been revealed, it's expected that the recommendations will include:

- Authorizing FTC to require continuous and systematic reports on compliance by a company under a cease and desist order. (Present rules commonly require a compliance report within 60 days after an order is issued, don't demand any further check until a complaint is actually received by FTC.)

- A check of existing antimonopoly orders to determine if they are still adequate—changed conditions may have made some orders no longer necessary, others in need of strengthening.

- Categorizing orders by industry or by geographic location to facilitate quick and expeditious investigation by FTC field examiners.

- Re-examination of FTC procedure in requiring the first compliance report—with emphasis on the possibility of holding personal conferences between FTC lawyers and the offending businessmen.

Regardless of whatever the committee's actual findings may be, however, it's clear that Chairman Howrey is determined (one way or another) to gain his goal. Not waiting for further authorization, (and following up FTC's survey of the services and facilities plans being used by over 200 cosmetic manufacturers in sales promotion campaigns) he's launching an investigation of pricing practices and promotional allowances of cosmetic manufacturers and wholesalers in certain trade areas. Specific aim: (1) to determine whether the sales

plans reported to FTC actually are in effect, and (2) to ascertain what that effect really is.

When the spot check on cosmetic makers is completed, FTC will know whether its trade practice rules are being obeyed and whether a whole new series of complaints (charging violation) must be filed. But the question won't be answered for other industries. And Howrey's intent—"to save time and money"—won't be accomplished. Presumably, the commission's forthcoming checkup on cosmetics alone could result in a number of court cases. Violation of an order issued by the commission under the Federal Trade Commission Act subjects the offender to a civil suit in the Federal District court, and violation of an order issued under the Clayton Anti-Trust Act involves contempt proceedings in a U.S. court of appeals.

Therefore, the upcoming committee findings are of real importance to Howrey and the FTC, may spell the difference (in Howrey's mind at least) as to whether the Administration is able to realize its goal—a tougher tack on enforcing its orders.



## Pursuit of a Poisoner

AUSTRALIAN LIVESTOCK losses due to toxic plants have now reached the stage where both government and private action is being taken to eradicate the plants. That's behind heavy imports of 2,4-D and 2,4,5-T from the U.S. in recent months; and that's behind expansion under way by the

three local producers of agricultural chemicals—ICI (Australia), Monsanto Chemicals (Australia) Ltd., and Timbrol, Ltd. Australia's problem is compounded by the failure of some growth inhibitors and sprays to cope with certain plants native to the Commonwealth.



**BURN'S DILEMMA:** No sure sign of a trend.

## Too Many, Too Unsure

Nub of the problem facing Administration economic advisors in Washington this week is that indisputable signs of a halt in the downward trend of business have failed to materialize. Some sectors of the nation's industry (led by the chemical industry, *CW*, May 8, p. 13) report that sales started picking up again in March. But the movement of other—more popular—indicators of activity have been smudged by a host of seasonal influences.

U.S. employment, for example, has inched up only slightly since its big jumps upward in January and February. Further: in industries where the economy usually undergoes a spring resurgence (for example, the clothing industry, dependent on the chemical industry for a number of products), the pickup's been slower this year.

Corporations (paralleling the chemical industry, *see p. 25*) are tapping the long-term market for new funds at a slower pace this year than last, and the drop-off in new financings is noticeable.

Administration advisors (headed by Arthur Burns) think the upsurge will come soon—perhaps by the third quarter of 1954. What could (and may) tip the scales in either direction is the Geneva conference—which will directly affect the U.S. defense policy—and indirectly the course of business activity.

"Conditions," notes one economic observer, "are now ripe for a turnaround . . . somewhat like the one that materialized in 1950." If the Communist bloc decides to challenge

the U.S. on the subject of Indochina, "the upturn could come swiftly."

Indicative of the impact defense spending has on industrial production in general:

- Industrial production has now dropped 10% from its 1953 peak—as much as in the 1949 recession.

- Simultaneously, defense spending has plummeted from \$53.5 billion (in the second quarter of '53) to \$47 billion in the first quarter of 1954. And the cutback in new orders for defense goods has been even sharper. (\$35 billion/year as opposed to the current \$47 billion.)

Another possibility, under consideration by Eisenhower advisors: if Geneva negotiations prove successful (and negate the necessity of further U.S. involvement in the Near East), spending in connection with the Atomic Energy Commission's new hydrogen bomb goals may offer enough reserve twist to swing the balance upward. Heading the list of expenditures which would immediately fall upon the chemical industry: plant dispersal.

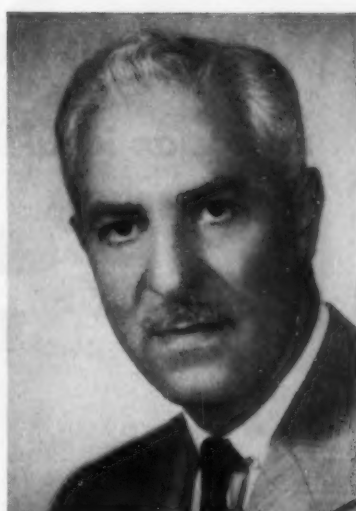
In any event, the current official position in Washington is a cautious "wait-and-see": none of the present business signposts indicates the need of any drastic action now.

## LEGAL . . . . .

**Water Settlement:** The amicable Supreme Court lawsuit in which New York City, Pennsylvania and Delaware are discussing how to share the waters of the Delaware River is approaching a settlement. It appears this week that Pennsylvania and Delaware are willing to let New York take a total of 800 million gal./day, providing that New York will guarantee a certain minimum flow in the big river during dry seasons.

Delaware's position was set out last week in a memorandum filed by Attorney General Albert Young before the special master appointed by the Supreme Court to hear arguments and recommend a verdict. Young says that the high court should appoint someone to administer any decree decided on, and to keep track of all data on river flow, diversions, and releases of water from New York's reservoirs. Young refused to concede that New York was entitled to the additional diversion, but said that his state "cannot show any present damage to its interests if the amended petition is granted."

Pennsylvania warns that sometime "in the not too distant future," industrial and residential expansion in its



**DELAWARE'S YOUNG:** No objection to diversion if his state won't be hurt.

Delaware Valley area might give that state a claim to the water for which New York now is asking.

One of New York's arguments in support of its petition is that the proposed diversion actually would benefit downstream industrial users in at least one respect. Maintenance of the diversion rate, the city contends, would have "a permanent stabilizing effect on the river" and reduce the amount of variation in the stream's salinity.

• **Still Fighting:** Interhandel, the Swiss holding company that is still battling for its interest in General Aniline & Film Corp., now is asking the U. S. Court of Appeals to reverse the decision of the District Court in Washington. Objective: to allow Interhandel to continue its suit for recovery of the stock that was seized by the U.S. government early in World War II.

Lawyers for Interhandel insist that the lower court erred in penalizing Interhandel for its inability to produce all the ownership documents that had been demanded by the U. S. Dept. of Justice before a certain time limit. Those papers, according to the Interhandel brief, are records of the Sturzenegger banking firm, over which Interhandel has no control. The brief cites a previous Supreme Court decision in which a document-producing order was limited to papers that were in the power of the litigant.

• **Consent Order:** Another antitrust suit is being settled by a consent order, terms of which were agreed to by the Dept. of Justice and Blaw-Knox Co. Like the settlement in the aluminum

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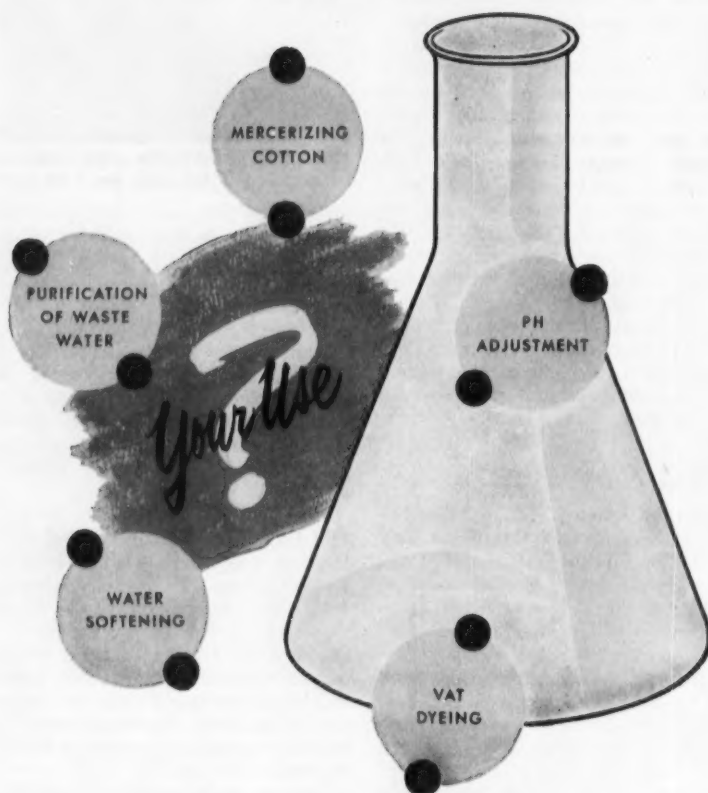


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B & I . . . . .

case (CW, May 15, p. 32) this latest decree permits Blaw-Knox to continue dealing with foreign concerns but forbids provisions considered to be "in restraint of trade." The government had filed this suit in 1951, objecting to alleged agreements on sale of certain cast metal rolls and other products in the U.S. and abroad.

**Competitors Sued:** Asserting that two companies he formerly worked for as a chemist are now trying to eliminate his Pacific Adhesives Co. as a competitor, Charles Cone of Portland, Ore., has brought suit against American-Marietta and U. S. Plywood Corp. He's asking \$450,000 damages for himself and \$40,000 for his legal counsel. Pacific Adhesives markets a glue Cone says he developed for plywood use.

**Called on Carpet:** Two widely separated paint companies are in trouble with the federal government this week.

• In San Francisco, a grand jury has indicted three officers and nine salesmen of Atlas Enterprises of San Leandro, Calif., a mastic paint company, on charges of conspiracy and fraud against the Federal Housing Administration. The 24-count indictment alleges that the men padded home repair loans above the actual costs of the projects.

• At Miami, Fla., the Federal Trade Commission has charged that the Mary Carter Paint Organization has used "false, misleading and deceptive" statements in its advertising. FTC is challenging the company's claims that its paints are made "by an exclusive new process" and that its products are equal to the highest quality paint on the market.

**Construction Suit:** Both sides claim to be the injured party in the civil suit between Texas City Chemicals and Chemical Construction Co. in Galveston, Texas. Texas City Chemicals is suing for \$1,961,953.32, asserting that Chemico had promised to have two plants—one for dicalcium phosphate, one for contact sulfuric acid—ready to go onstream last August, but that they weren't completed until October.

Chemico says the suit is "totally unjustified," and that during recent months Texas City Chemicals had become delinquent in payment of more than \$500,000 in expenses and fees. A Chemico spokesman said his firm will "fight the suit vigorously, and will take legal steps to secure payment of Texas City's debts."



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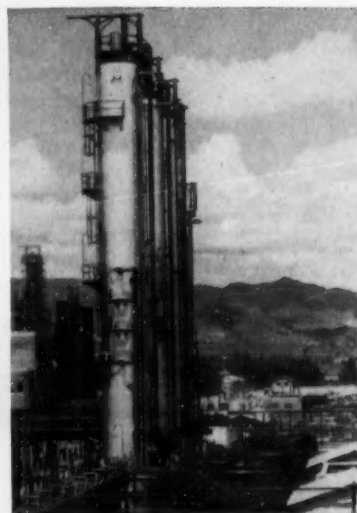
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# REPUBLIC

## METAL BARRELS AND DRUMS



B & I . . . . .



**PETROLEUS MEXICANOS:** Forerunner of Mexico's drive on petrochemicals.

## FOREIGN . . . . .

**Petrochemicals/Mexico:** Following its major drive to exploit sulfur resources, Mexico will launch an all-out drive on the development of its oil reserves. In seeking additional foreign capital for the exploration of new oil fields as the "imperative factor in securing the continued development of Mexico's economy," government officials cite petrochemicals as "the greatest prospect for Mexican advancement in the next decade."

**Netherlands-Russian Accord:** Holland and Russia have signed a reciprocal trade agreement, according to late reports from the Hague. Among the commodities listed for export to Russia: cellulose and chemicals.

**Nitrates/Chile:** In an official declaration, the Nitrate Corp., Chile, (which controls export of the mineral) says that Chilean sales of nitrates in the fiscal year ending June 30 will reach the 1.4-million ton figure, half of which will have been imported by the U. S. Prospects for 1954-55 look still better; spokesmen expect that total sales will top 1.8 million tons.

**Uranium/India:** India will have completed construction of a uranium-thorium plant at Bombay by the end of the year, according to Deputy Minister of Natural Resources and Scientific Research K. D. Malaviya. All equipment (both imported and domestically manufactured) will be available within three months. Initial major product: thorium nitrate, about 200 tons/year.

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0.8427 .....	Specific Gravity at 20/20°C.....	0.8474
52.6°C.....	Boiling Point at 760 mm. Hg.....	68.0°C.
215 mm.....	Vapor Pressure at 20°C.....	120 mm.
<0°F.....	Flash Point (Cleveland open cup).....	5°F.
20.8% by wt. ....	Solubility in Water at 20°C.....	5.9% by wt.
6.8% by wt. ....	Solubility of Water in at 20°C.....	1.7% by wt.

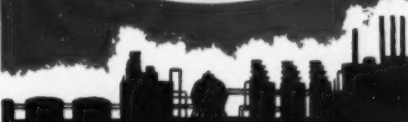
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# Koppers Chemicals

## B & I . . . . .

**Explosives/Peru:** The first explosives manufacturing plant to be built in Peru will be constructed at Lurin by Explosives S.A. Technical advice is being supplied by Poudreries Reunies de Belgique (a Belgian concern that owns explosives plants in Africa and Australia); capital is being put up by Peruvian mining interests.

**Cellulose/Chile:** An agreement has been signed by the Corporación de Fomento a la Producción and the German firms of Otto Wolff, Cologne, and Phrix Werke A.G., Hamburg, to form a new company—Celulosa Chilena, S.L. Technical assistance will be supplied by Phrix Werke; capital will be handled by Otto Wolff over a period of seven years to the amount of \$28 million. It's expected that initial production will run close to 75,000 tons/year of cellulose, a large percentage of which will be available for export. Official approval by the German government is necessary before construction of plant facilities may begin.

**Fertilizer/Netherlands:** A pilot plant to produce potassium chloride from sea water has been built by the Norduco A.S. at Ijmuiden. Production will be started soon, is expected to reach 1,500 tons/year. Anticipated yield: a ton from 71,300 cu. ft. of water.

## KEY CHANGES . . .

**John Hildring**, to executive vice-president, General Aniline & Film Corp., New York.

**Ward Jackson**, to vice-president, Commercial Solvents Corp., New York.

**Frank E. Maple**, to general manager, Industrial Chemicals Sales Dept., Commercial Solvents Corp., New York.

**Richard Pfizenmaier**, to vice-president, Smith, Kline & French International Co., Philadelphia.

**William A. LaLande, Jr. and Edward F. Beale**, to vice-presidents, Pennsylvania Salt Manufacturing Co., Philadelphia.

**Kenneth M. Irely**, to assistant vice-president, Heyden Chemical Corp., New York.

**Frank L. Esposito**, to controller, General Dyestuff Corp., and the Dyestuff and Chemical Div., General Aniline & Film Corp., New York.



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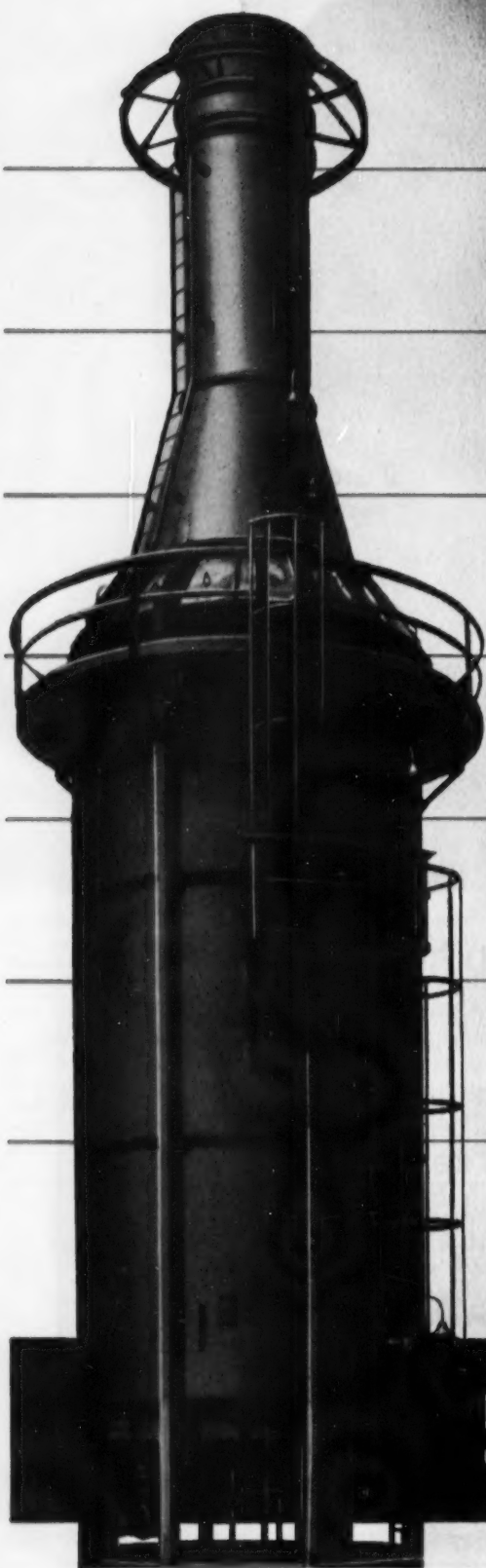
Although we are not producers of chemicals, our future as designers, engineers and constructors of manufacturing plants is linked to the industry's future. We wish all success to MCA's program.

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120  
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**installed by  
62  
Chemical  
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**installed by  
52  
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Companies**

**88 Isoflow Furnaces**



**installed by  
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air heating and  
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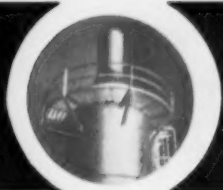
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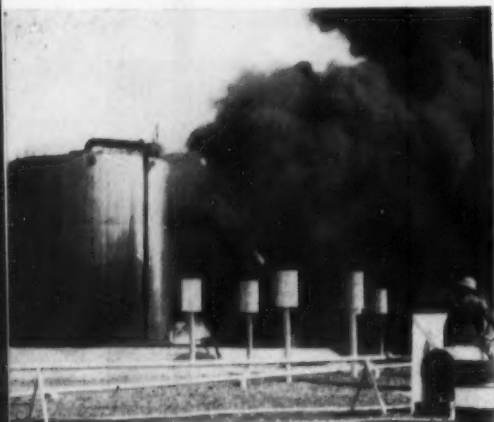
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# PRODUCTION . . . . .



TO TEST THE INSULATION VALUE of Unox solution, kerosene, in dike around the base of a water tank, is fired while sides of tank . . .

## Testing by Deliberate

Next to doing it himself, there's nothing that cheers a firefighter quite like the sight of someone else doing a good job putting out a fire. And scores of visiting firemen (from chemical firms and makers of firefighting equipment) had a rattling good time last fortnight at Carbide and Carbon's South Charleston (W. Va.) plant when the firm's fire engineers spent two days just setting fire to kerosene.

At casual glance, the result looked like a major disaster. But this was disaster with a purpose. For Carbide was out to prove what its Unox-brand fire extinguishers (a blend of one of its Tergitol wetting agents with a suitable inhibitor) could do—not only in putting out fires but also in protect-

ing tanks from damage in case of fire.

Unox isn't new; Carbide has had it on the market for several years. But James Duggan, the firm's fire expert, found that the efficacy of the compound is materially boosted by aeration.

As Duggan sees it, water itself is the most efficient and universally applicable medium for extinguishing fire. All you can hope to do is to provide it with a vehicle that makes it go to work either quicker or easier. Mechanical devices that convert water into a fog or spray do just that: They increase the surface area of the water particles.

But that only provides surface cooling. Duggan figured a more fruit-



. . . gradually builds up to climax.



WHEN kerosene flow is halted, Unox snuffs out flame.



DIRECTING OPERATIONS are Duggan, Gilmore, Fisher, & Baker.



... are blanketed with solution. Thermocouples measure heat rise inside tank as kerosene is pumped into dike continuously and fire ...

## Disasters

ful line of attack would be to find a way of increasing the surface penetration of the water. Unox proved to be the answer. But Duggan felt there was still room for improvement; even with the use of Unox, an excessive amount of water was needed to put out a fire.

Next try: a solution of Unox foamed by aeration. And though neither this line of reasoning nor its conclusion originated with Duggan, he feels that he and his staff have gone a lot further with it than others. To prove his point, he and his assistant, Fred Fisher along with project leaders Walter Baker and Charles Gilmore, put on the demonstrations at South Charleston. Here's what they did:

- In the first test series, they set

fire to kerosene in a dike surrounding the base of a water tank, then extinguished it with a blanket of Unox foam applied at the top of the tank. Using 26 gal. of Unox concentrate in a total volume of 1,600 gal., they took 7 minutes, 26 seconds to extinguish the fire.

- In a series of similar tests, they measured the insulation value of Unox by checking the heat rise of water inside the tanks. For one test, the kerosene fire was kept going by pumping in additional fuel for 16 minutes. The average heat input to the water tanks was 5,474 Btu./hour/sq. ft. The temperature of the water rose only from 29.0 C. to 31.6 C.

- In the third series of tests was measured the efficiency of Unox foam in extinguishing fires in open pans. In one test, the flame from 500 gal. of burning kerosene in a pan 25 ft. in

diameter was quenched in 1 minute, 24.2 seconds by 1.6 gal. of concentrate in 105 gal. of solution.

**Building a Market:** Unquestionably the firms that stand to gain the most from any advances in firefighting techniques are those engaged in petroleum refining. But chemical companies, too, are aware of the fire hazards involved in protecting tanks used for storing huge quantities of flammable liquids.

Carbide itself learned some of the facts the hard way back in 1951 when a bolt of lightning hit an alcohol storage tank, caused roughly \$2 million in damages.

The work that fire expert James Duggan is doing is therefore coming back to it in two ways: it's broadening the market for its wetting agents, and it's helping the firm to protect its own plants.



QUENCHING POWER of solution is checked on kerosene fire in a large, open pan.



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PRODUCTION . . . . .



FINISHED MELT: Inside the shell, a crystalline core.

## Strategic Synthesis

Two companies make their bid for multimillion-dollar mica market with a chemical process for synthetic fluor-phlogopite. Essentially, it's a simple melt operation.

Process development was propped by government interest, evolved from early work by the U.S. Bureau of Mines.

Significance is strategic, for although it's calculated to cost more than the natural, the new synthetic mica could free U.S. from vital dependence upon Indian exports.

In the event of war, how long could the U.S. subsist on its low-grade domestic mica for manufacture of precision electrical and electronic units? The answer could be, as Germany discovered in World War II: not long enough.

Now, however, two companies—Mycalex Corp. of America (Clifton, N.J.) and Brush Beryllium Co. (Cleveland)—are aiming to offset this

strategic disadvantage, cut into a lush \$30-million-plus combined domestic-import market with a new synthetic product that is claimed to be even more versatile than natural mica. Faced with impending competition for its \$20-million mica exports, India could well find cause for concern.

At this point, no one is quite sure just where the synthetic mica will go

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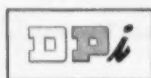


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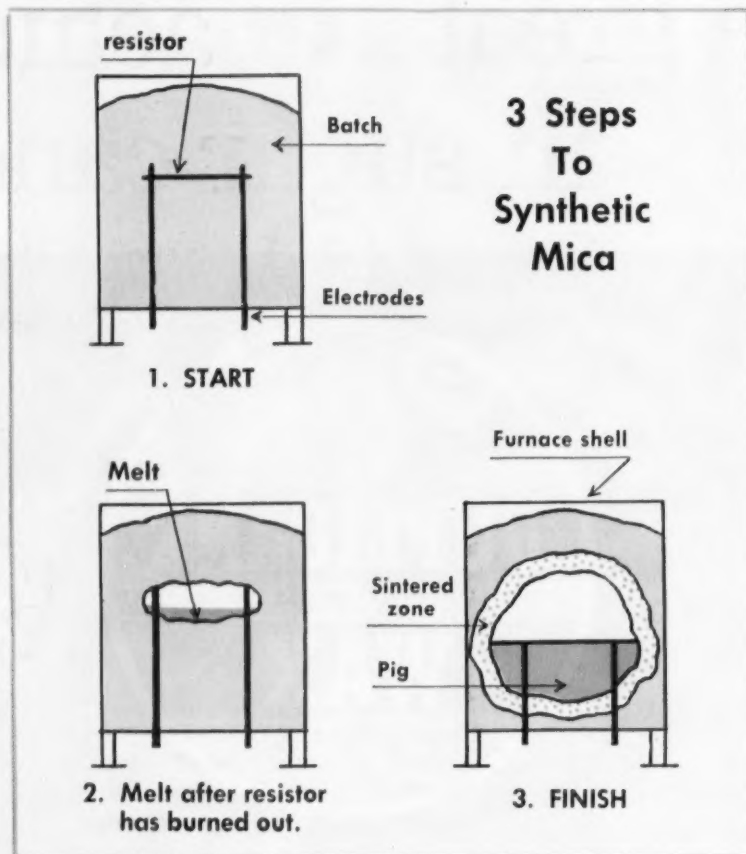
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## PRODUCTION . . . . .



CROSS-SECTIONS: Melting the batch down to make synthetic mica pigs.

—outside of the electrical-electronic field. But higher temperature stability and greater purity of the synthetic, the two companies believe, will open the door to many places the other has not been able to enter. Aviation and the chemical processing industries are two promising possibilities. Meanwhile, the two producers along with General Electric, the government, and American Lava, among others, are all actively tracking down application potentials of the compound.

Dielectric properties and machinability of the synthetic appear on a par with the natural as far as applications within the electrical-electronic field goes. The synthetic will sell for more than the natural mica, but the producers expect its higher temperature stability and greater purity to offset this differential.

Developmental lots (up to 500 lbs.) of the material are currently selling for \$1/lb., but both producers agree it's impossible to gauge future price from present operations.

**Stopping Short:** Production so far has been on a pilot-plant scale only. Both processes are essentially similar: basic oxides, fluorides and feldspar

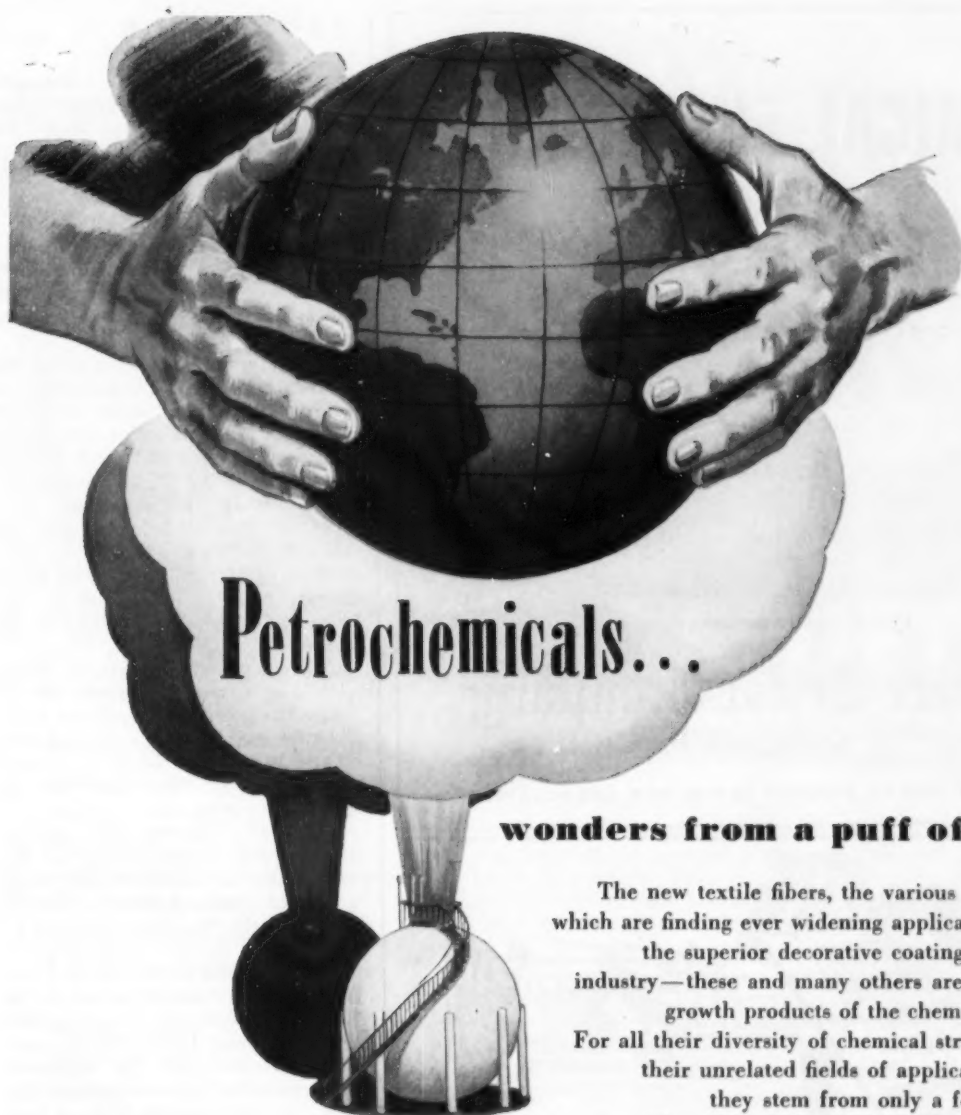
are mixed and electrically melted in a simple shell furnace. Brush Beryllium, however, stops at the sinter stage just short of the complete melt.

The sintered Brush mica is a micro-crystalline material, too fine to be used in mica mats (CW, June 21, '52). It is easily machined or hot pressed but can not be punched (the borders around punched-out areas break off, crumble and soon lose their sharp outlines). Unlike Brush sintered product, Mycalex's flaked crystalline material can be punched and injection molded but cannot be machined unless combined with other material. Heat resistance, purity and dielectric properties of both forms are about equal; and, actually, either producer can switch from one type to the other at will.

The synthetic sintered mica is more directly related to the Bureau of Mines work at Norris (Tenn.) from which it arose; for the group at Norris was the first to produce sintered\* synthetic mica. Also an outgrowth of the work at Norris, the synthetic

\* Although other forms had been synthesized on a laboratory scale back in the late 1800s.





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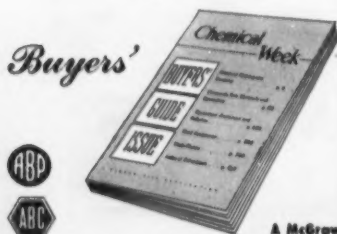
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## PRODUCTION . . . . .

flake mica operation took a divergent tack from the government work, represents an intermediate stage for Mycalex development staff. Mycalex's goal is production of large (4x4 in.), single mica crystals. These crystals would be expensive (\$100-200/lb.), but could find immediate application in the television industry where they would increase the efficiency of the image orthicon television camera tube.

But Mycalex isn't waiting for its development staff. The company has already started construction of a 5-10 ton/week synthetic mica unit at its Clifton site, hopes to have it finished by the end of the year. Brush Beryllium, however, plans to wait for a "definite" market before scaling up its 500 lb./week pilot plant. The Bureau of Mines has just shut down its pilot unit, has set itself to the task of compiling all available data on the subject.

**Too Late:** The Bureau of Mines picked up where the Germans left off in the development of synthetic mica. In a frenzied but futile effort during World War II, the Germans reached the pilot-plant stage but got no further.

Right after the war, U.S. industry teams visited Germany to study the war-cloaked development. Jack Waggoner of Owens-Corning Fiberglas was with the team that reported on the Germans' synthetic mica progress; later, he induced his firm to join Corning Glass in a research project on the growth of synthetic mica crystals. After two years (1946-47), the companies decided that the expensive, time-consuming research venture was, if not at cross-purposes with, at least not in line with current company operations and so abandoned the project. All data were given to the government.

All work to this point had been directed toward development of large single sheets of synthetic mica. The Bureau of Mines started out in the same direction, failed, found in its failure interesting by-products that finally led to success, to pilot-plant production of sintered synthetic mica for the first time.

**Vertical Integration:** Unlike Corning Glass and Owens Corning Fiberglas, Mycalex felt the project would fit well its own operational scheme and so joined with the Bureau of Mines at Norris in a cooperative set-up from March '53 to March '54. Mycalex, best known as a manufacturer of glass-bonded mica products, heretofore had purchased its mica supply from outside sources. Brush

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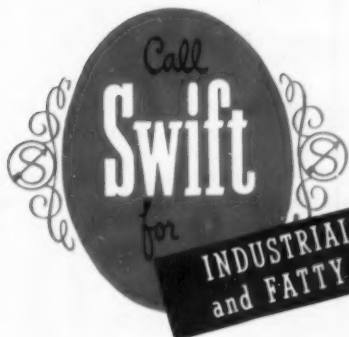
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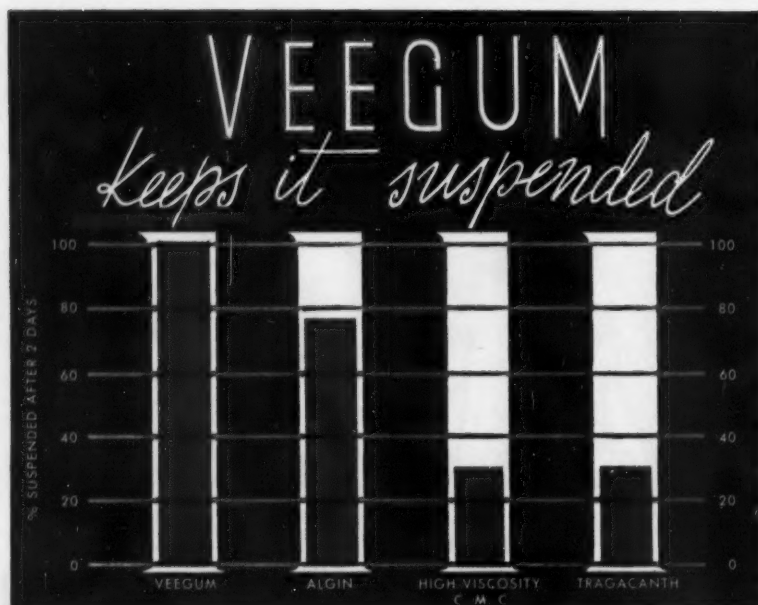
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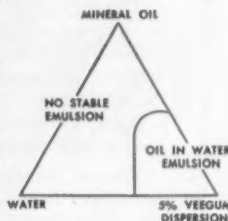
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#### PRODUCTION . . . . .

Beryllium, on the other hand, is entering the mica field for the first time, isn't quite sure just where the venture will lead. The Office of Naval Research which previously had coordinated the entire program is sponsoring the Brush project.

Although Mycalex figures it will have a great deal of synthetic mica to sell on the open market, the firm's first interest in the undertaking is for its value to its glass-bonded products. So far the company has found the flake form superior to the sintered mica for its own purposes. Production of the flaked material unfortunately is more time-consuming, lends itself less readily to continuous or semicontinuous operation.

Except for the complete melting, the Mycalex process is similar in all other aspects to the Bureau of Mines and the Brush Beryllium operations. Seemingly destined to remain a batch process because of the long time required for melting and cooling, it takes place along these lines:

Magnesium oxide, aluminum oxide, silicon dioxide, potassium silica fluoride, and potash feldspar are charged in stoichiometric quantities, mixed together in a dry-batch blender, and fed into a ¼-in. steel shell furnace. Since there is no transportation or vibration of the batch materials, density or order of mixing presents no problems. The batch is poured into the furnace—around and above the vertical electrodes, which support the horizontal resistor (a third graphite electrode).

Ordinary 60-cycle, 2,000-amp. current is applied to the electrodes, generates heat as it passes through the resistor, which starts melting the batch (see illustration). After seven hours, the resistor burns out; the current then passes through the melt itself. Electrical resistance of the molten mass at this point is sufficient to provide the heat necessary for continued melting. As soon as the resistor separates out, power is increased to speed the melting.

Actually, the batch reacts to form microscopic crystals of mica before it reaches melting temperature. (Brush Beryllium cuts its operation short at this sintered stage.) Because of its high porosity, the batch continues to shrink as it melts, creates an air space in its wake; both molten mass and air space continue to enlarge within the sintered zone while the unreacted batch on the other side of the border diminishes.

**More Than the Yield:** At the end of 80 hours, the operation is finished (the sintered border has moved out to the furnace walls). The current

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### PRODUCTION . . . . .

then is cut off and the pig is allowed to cool for 7-12 days. The split shell furnace is removed, unreacted batch lifted away, and the sintered shell is peeled off the crystalline pig. Next pavement breakers are used to break up the tough pig. Sintered material is run through a jaw-crusher, fed into the next batch along with unreacted material.

Weight of the crystalline pig as reported by Mycalex is 11,600 lbs., represents a 50% yield. But taken from an over-all angle, the yield is actually much higher; for over 95% of the residue (sintered and unreacted material) is carried over into the next batch. Translated into terms of power, the operation shows a melting efficiency of 1.93 lbs. synthetic mica/kwh.

**Process Problems:** While electrical power obviously is a major requirement, Mycalex figures it is a relatively minor cost factor, compares an estimated electricity cost of 1¢/lb. with a 7-9¢/lb. raw material charge. More important, Mycalex declares, are materials handling problems such as moving the 11-000-lb.-plus material carry-over from one batch to the next.

Development of large-size crystal production is another barrier to be hurdled. The principal approach to this problem so far has been by way of slow, controlled cooling. Relation of furnace size to pig size, suggests Mycalex' research and development engineer, Dick Humphrey, is another line worth investigating in the search for large-size synthetic mica crystals.

Many problems have already been solved, some inadvertently. Entrapment of fluoride vapors, for example loomed as one trouble spot, worked itself out as a result of the shape and composition of the batch. By the time the fluoride gases pass through the air lock and sintered shell, they lose much of their heat, condense as crystals of potassium fluoride on the cooler unreacted mass. As the melting continues, these crystals react with other raw material to form more synthetic mica.

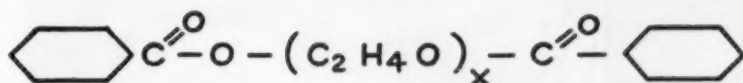
Tied in with the fluoride environment was the problem of corrosion. Bureau of Mines researchers found after a great deal of work that the sintered material beneath the melt actually formed a better container for the corrosive molten mass than any other known refractory compound. Among the other problems requiring human devices for their solutions:

- Directional control of the melt. Left unattended, the widening melt will reach certain sections of the furnace shell before others, necessitate



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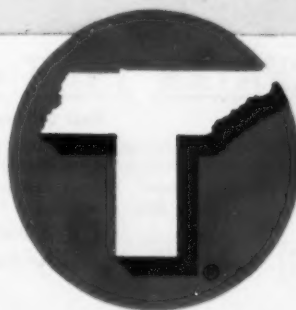
Benzoflex Number	9-98*	2-45*	E-60	T-150	P-200	P-300	P-400	P-600
Chemical Name	Dipropylene Glycol Dibenzoate	Diethylene Glycol Dibenzoate	Ethylene Glycol Dibenzoate	Triethylene Glycol Dibenzoate	Polyethylene Glycol 200 Dibenzoate	Polyethylene Glycol 300 Dibenzoate	Polyethylene Glycol 400 Dibenzoate	Polyethylene Glycol 600 Dibenzoate
Color APHA	100	50	50	100	100	150	150	300
Boiling Pt. @ 1 mm. Hg., °C.	195-200	200-205	....	223-37	217-290	243-327	258 d.	200 d.
Specific Gravity @ 25°C.	1.129	1.178	Solid	1.168†	1.158	1.150	1.145	1.141
Freeze Point, °C.	<-35	28 16	70-2	47	<-35	<-35	<-35	3.8
Pour Point, °C.	-20	-25†	Solid	Solid	-30	-30	-35	Solid
Flash Point, °C.	212	232	186	237	248	258	254	264
Refractive Index @ 25°C.	1.5282	1.5424	Solid	Solid	1.5252	1.5137	1.5077	1.4984
Viscosity (cps. @ 20°C.)	215	110	Solid	Solid	101	130	167	330
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Water in	0.45	1.0	....	....	2.3	8.3	16.5	32.0
Aliphatic Hydrocarbons	sol.	sl. sol.	insol.	sl. sol.	insol.	insol.	insol.	insol.
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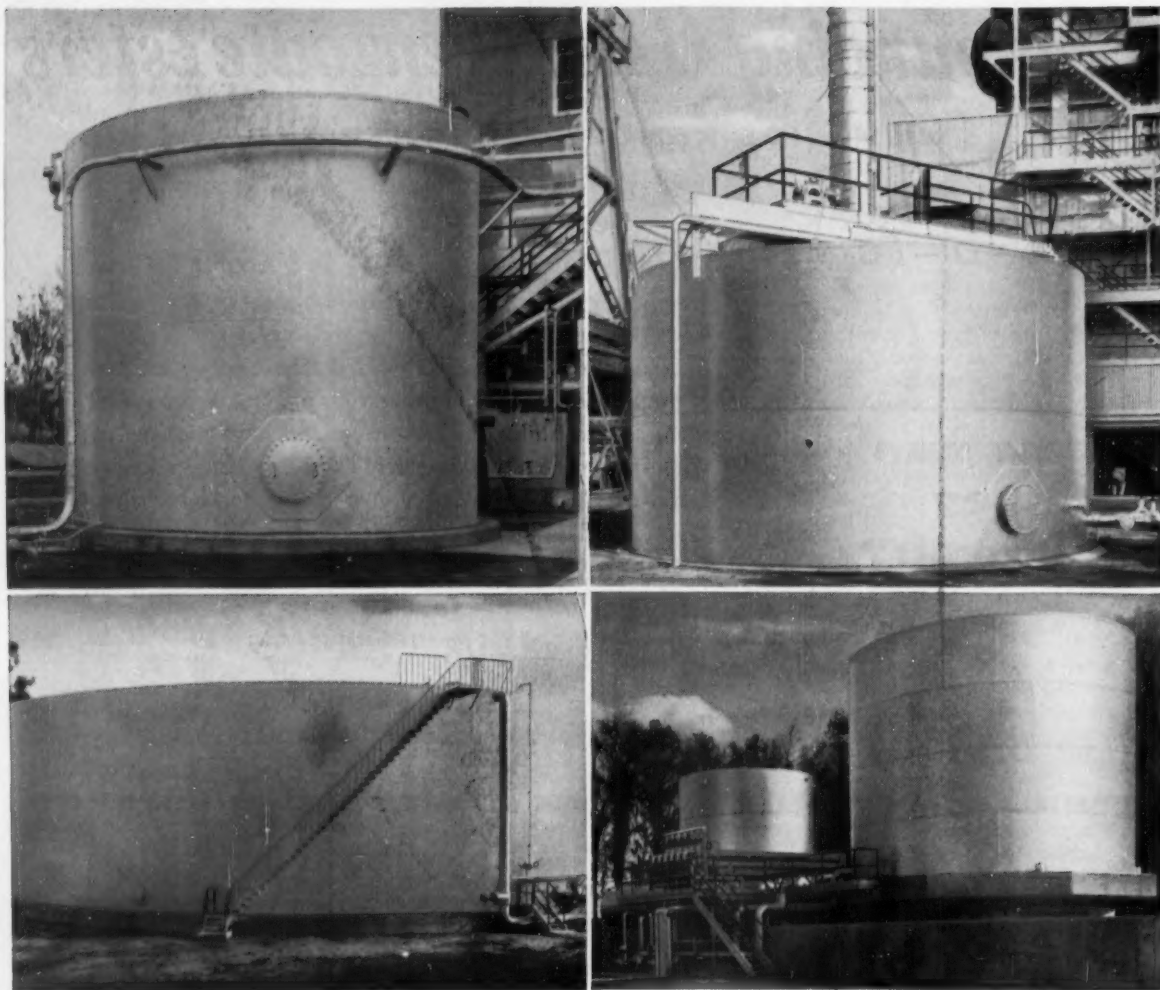
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Industries of all types have come to rely on Graver-built cone roof tankage. The field-erected Graver cone roof tanks pictured here, for example, were built under the supervision of Ebasco Services, Inc., for the current expansion of Florida Power and Light Company. This is part of a long-range program designed to provide increased electrical service, when and as required by the extraordinary growth trend of this state.

These facilities are by no means an isolated instance of the versatility of Graver tankage. Graver cone roof tanks have a national reputation in the chemical, power and petroleum industries for the efficient storage of liquids of every type, and they are readily adapted to dry storage. In carbon steel of all-welded standard API design or in alloys or aluminum, they are today in service across the country in every sort of industrial use.

### **GRAVER TANK & MFG. CO., INC.**

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Fontana

**GRAVER** ... building quality tanks for 97 years

## PRODUCTION . . . . .

current shut-off before the maximum amount of product is formed. Water-cooled jackets for the furnace keep the melt from burning through the steel shell and permit maximum yield.

- Constant replacement of burned-off electrodes. The use of graphite electrodes with screw nipples quickly eased this problem. Additional graphite sections are added as needed while the electrodes are pushed up to the desired height from the bottom.

- Escape of noxious trace sulfur gases (which, unlike the fluorides, don't condense) into the atmosphere. This trouble was worked out satisfactorily through adoption of graphite electrodes with lower sulfur content.

Carbon particles from the burned-off graphite electrodes oddly enough create no problem. Present only in colloidal dispersion, the carbon implants a grayish hue to the synthetic mica crystal but doesn't seem to affect dielectric properties.

Nor does lack of raw materials offer any obstacle. Magnesium oxide is plentiful as calcined magnesite or seawater magnesite. Aluminum oxide is readily obtained as a product of bauxite refinement in the production of alumina. Silicon dioxide is available in large tonnage as powdered quartzite because of its importance to the glass industry. Potassium silica fluoride is abundant in almost chemically pure form as a by-product of phosphate fertilizer production, and potash feldspar can be commonly found in large Western mineral deposits.

Obviously, at this stage it would be almost impossible to make an accurate appraisal of synthetic mica's eventual role in industrial development. On the other hand, established markets are already present; the necessary raw materials are abundant; and, declares Mycalex, the process has proved to be economical, rapid, and adaptable to the production of melts weighing several tons. This in itself could well give Indian exporters cause for speculation.

**Portable Dryer:** Nerco-Niro Spray Dryer Div., Nichols Engineering & Research Corp. (New York), is now on the market with a new portable spray dryer for pilot-plant and small-scale production. Constructed of stainless steel, the unit features two built-in heaters (one electric, the other direct-fired gas) controlled directly from the panel board, a simplified voltage change-over system, and new hydraulic drying chamber-lid removal.



## How to keep informed on the “with what” part of your business

AT YOUR FINGER TIPS, issue after issue, is one of your richest veins of job information — advertising. You might call it the “with what” type — which dovetails the “how” of the editorial pages. Easy to read, talking your language, geared specifically to the betterment of your business, this is the kind of practical data which may well help you do a job quicker, better — save your company money.

Each advertiser is obviously doing his level best to give you helpful information. By showing, through the advertising pages, how his product or service can benefit *you* and *your* company, he is taking his most efficient way toward a sale.

Add up all the advertisers and you've got a gold mine of current, on-the-job information. Yours for the reading are a wealth of data and facts on the very latest in products, services, tools . . . product developments, materials, processes, methods.

You, too, have a big stake in the advertising pages. Read them regularly, carefully to keep job-informed on the “with what” part of your business.

## McGRAW-HILL PUBLICATIONS





## Offspring of the Atom

Twenty million dollars isn't a particularly impressive figure next to the annual sales of some leading industrial companies. And it doesn't look any bigger when it represents the year's sales of an entire industry. But the picture changes when you consider that the industry in question was minuscule only eight short years ago, comprised a meager handful of companies.

That should be enough to identify the expanding circle of nuclear instrument manufacturers—a group that by this week numbered close to 100 firms. Collectively, they provide the nucleonic nerves for the nation's high-strung atomic research program.

What makes the story more interesting is its strong overtone of re-

search. A direct offspring of wartime atomic research, the nuclear instrument industry is largely managed by men who have come out of university and government laboratories.

Five of the six companies that account for more than half the industry's revenue are piloted by relative newcomers to business. Tracerlab, Inc., (Boston) Atomic Instrument Co. (Boston) and Radioactive Products, Inc. (Detroit) drew their top people from Massachusetts Institute of Technology. The A-bomb project staff of the University of Chicago's metallurgical laboratory yielded the management of Radiation Counter Laboratories, Inc. (Chicago) and Nuclear Instrument and Chemical Co. (Chicago).

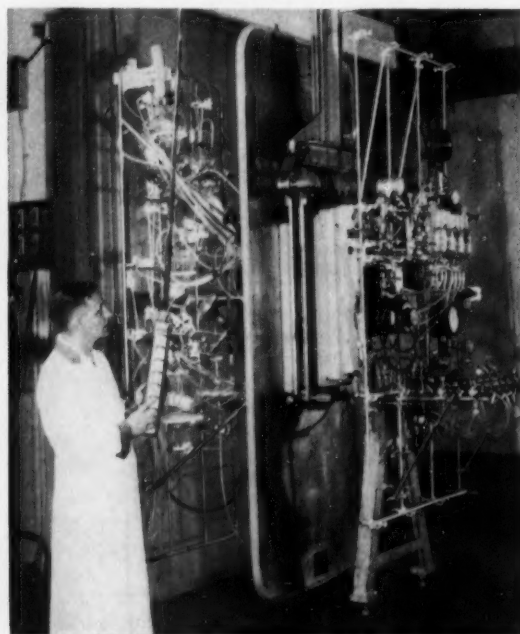
The sixth: Victoreen Instrument Co. (Cleveland) which, from its start in 1931, remained the only fabricator of nuclear instruments until 1946. Manufacture of X-ray dosimetry equipment led Victoreen into nuclear instruments.

Taking the management picture into account, it doesn't come as much of a surprise that the earning record of the six leaves a lot to be desired. Ernest Wakefield, president of Radiation Counter Laboratories, points out that during the years 1946-52, the group amassed net sales of nearly \$25.5 million, retained a net profit of \$749,920. That's about 3%, an earning rate that won't draw much envy.

But inexperience is only part of the



It takes these instruments . . .

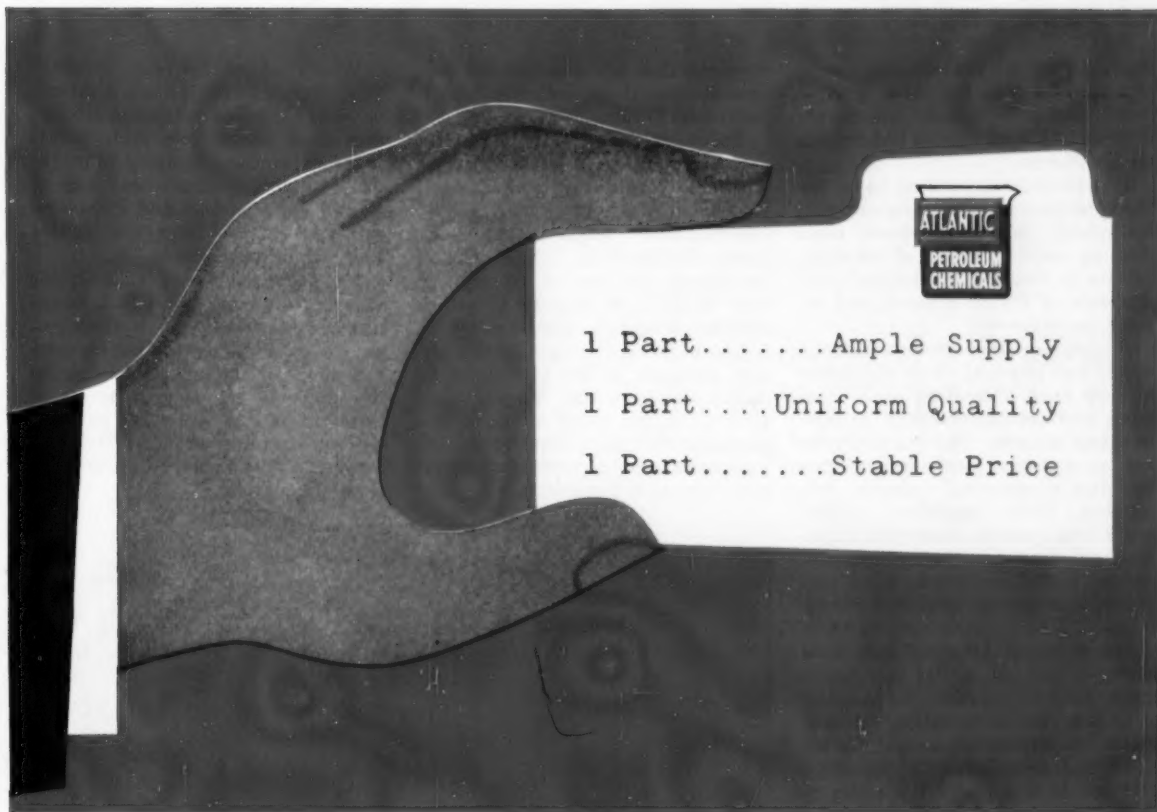


. . . to control this experiment

## Controls Overgrow the Controlled

SOME IDEA of the magnitude of the nuclear instrument designer's problem is dramatically pointed up by the maze of meters, dials, knobs and levers (left) connected to the instruments needed to control radioactive chemicals in the "hot" cell (right) at Brookhaven National Laboratory. Instruments are generally costly and experimental setups in radioisotope work are

becoming larger and more complex. To control a scintillation spectrometry experiment, for example, a researcher may require several multipanel racks of equipment. Since a breakdown anywhere in the line would stop the whole process, reliability is of top importance, generally outweighs the desire to economize on any instrument component.



1 Part.....Ample Supply  
1 Part....Uniform Quality  
1 Part.....Stable Price

## Best Formula for Figuring Raw Material Costs



Fluctuations. Up and down. Prices of many raw materials can change overnight; making it difficult for you to plan ahead.

Not so with petroleum raw materials. Petrochemicals made by Atlantic remain free from the price uncertainties which are prevalent with other types of raw materials. Also, Atlantic Petrochemicals are produced by modern mass production methods. These factors keep prices stable at a low level—even with today's rapidly growing demand.

Many companies are profiting from this advantage now. And they are discovering other benefits to be found in Atlantic Petrochemicals: *Cutting costs*—in wool scouring, gypsum board, automobile tires. *Improving quality*—in spar varnish, textile dyeing, rubber base paints. *Expanding sales*—in new shampoos, washing compounds for laundry, dishes and many industrial uses.

Investigate Atlantic Petrochemicals. Complete technical assistance assures you maximum benefits. Write The Atlantic Refining Company, Dept. H-23, Chemical Products Sales, 260 South Broad Street, Philadelphia 1, Pa.



Philadelphia, Providence, Charlotte, Chicago.  
In the West: L. H. Butcher Co.  
In Canada: Naugatuck Chemicals Division  
of Dominion Rubber Company Ltd.  
In Europe: Atlantic Chemicals SAB,  
Antwerp, Belgium.

story. A poor tax position, dominance of a single consumer (the government), and an inherently low margin of profit\* all work against lush returns on investment.

If nucleonics executives have, for the most part, been short on corporate know-how, they have shown more than an ordinary share of resourcefulness in meeting the technological demands of atomic research and reactor development.

A typical nuclear reactor requires a tightly knit plexus of electronic meters to keep track of neutron chain reactions; and servomechanisms to control their intensity. The basic measuring instruments (and components) comprise proportional counters, BF<sub>3</sub> counters, linear amplifiers, scalars, count rate meters, ionization chambers, galvanometers, logarithmic amplifiers, period amplifiers, sigma amplifiers and magnet amplifiers among others.

Moreover, all of these and, as a matter of fact, all nuclear instruments can be used for experimental purposes as well as reactor operation. For laboratory experimentation, add Geiger tubes and scintillation spectrometers and you have a pretty fair roster of the nuclear researcher's tools.

Determining and designing the instruments to facilitate just one original experiment with radioactive materials (see box, p. 58) may tax the brainpower of a crew of physicists. And, considering the cost of experimental materials, potential danger, etc., there's little tolerance for error. To date, the nuclear instrument industry has proved fully adequate for its rigorous task.

The bulk of its development effort is now focused on the refinement and improvement of the fundamental components. A brief sampling of the new fruits of this labor: a unique automatic scintillation spectrometer (by Radiation Instrument Development Laboratories, Chicago); and a new micro-microammeter (by Beckman Instruments) for AEC's Savannah River installation.

Radiation Counter Laboratories has developed a new all-glass thin wall dipping counter and an improved mica window counter (resulting from a RCL-devised technique of helium leak-testing sensing elements).

And Tracerlab, Inc. is launching a new counter that's said to measure the radiation emanating in all directions from a sample; what it claims is the first  $\beta$ -ray spectrometer; an in-

strument that will measure and individually record the radiation from as many as 425 samples.

Following the industry's traditional sales pattern, the bulk of this new production will find its way into government hands. According to the latest Atomic Energy Commission survey (1952) about 50% of nuclear instrument sales are to the military, 30% to AEC, the balance to private industry, hospitals, schools.

But if the government is the biggest customer of the nucleonics industry, it's also the biggest competitor. A pet peeve of nucleonics people is the manufacture of nuclear equipment (for captive use) by at least two AEC installations.

What's ahead for the industry? One obvious trend is toward diversification. Member companies are getting more deeply into such related activities as the supplying of radioisotopes, and synthesis and sale of tagged compounds. And in several cases instrument firms are getting into nonnucleonics fields.

From the consumer balance, it's easy to spot the area in which instrument makers feel their work is cut out. Firm in the belief that industry will—if given the chance to develop the atom—be the greatest buyer of their wares, they are eager to relinquish their claim to being the only free-enterprise members of the nuclear energy field.



ARRIVAL AT RICHLAND: For the big question, no quick answers.

## Researchers on the Road

A picture may be worth 10,000 words, but there's no substitute for a first-hand look. That's the opinion of 30 research executives who have just wound up a tour of research and development facilities at 4 companies in the Pacific Northwest.

Their consensus: there are many valuable ideas to be gained just by observing other research managements in action. But there are no quick answers to the big question: How do you pick winning research projects?

The junket was Stanford Research Institute's second annual research management tour, which (over a 3½-day period) included stops at the lab-

oratories of Tektronix (Portland, Ore.), Crown Zellerbach (Camas, Wash.), General Electric's AEC operation (Richland, Wash.), and Boeing Airplane (Seattle). At each stop, host executives talked management research policy and practice with their guests, threshed out mutual problems around the tour's theme of "Selecting and Evaluating Research Projects."

The ayes had it on the need for more research ideas from sales, production, other corporate departments. But opinion was mixed on when and how to close out a project—and who should have responsibility for this action. Selections ranged from "the

\* Based on low capital requirements for entering the field. Practically any physicist or skilled technician can build radiation-detecting instruments in his own home or workshop.



*Cyanamid's*

No. 4 of a series  
of advertisements

## ACRYLO-NEWS

AERO\* Acrylonitrile, a highly stable bi-functional chemical, is finding increasing use as a reactive intermediate. Its versatility is indicated by its use in the preparation of pharmaceuticals, insecticides, surface active agents, and many other useful products as well as by direct application in the broad fields of rubber,

plastics and textiles. Its polymers and copolymers can be formulated to add many desirable properties to today's products and to create interesting new products for the future. The following items and abstracts, gathered from many sources, indicate a few facets of current research with this versatile chemical.

☆ ☆ ☆ ☆ ☆ ☆

ACRYLONITRILE-BUTADIENE ELASTOMERS blended with phenol-formaldehyde resins find use in such applications as artificial leather, conveyer belting and auto upholstery. Excellent heat flow characteristics of these blends make it practical to mold large articles such as pieces of furniture and chemical reactor vessels.

CYANOETHYL ESTER DERIVATIVES OF ACRYLONITRILE and S-(2-arylethyl)-2-mercaptoethanols are useful as plasticizers for polyvinyl chloride compositions. The resultant material possesses excellent thermostability, water resistance and low temperature flexibility.

COPOLYMERS OF ACRYLONITRILE AND BUTADIENE mixed with polychloroprene and vinyl chloride polymers serve as blending agents. Films from such resins display high elongation, tear resistance, good flexibility and moisture resistance.

A PLASTIC FLOTATION BODY features a shell of acrylonitrile-styrene and acrylonitrile-butadiene resins encasing a core of expanded cellular polystyrene. The shatterproof bodies, cubic in shape, may be joined together to form pontoons for transporting equipment.

BINDERS FOR GLASS FIBER WEBS have been developed from acrylonitrile-vinyl acetate-vinyl chloride interpolymers. A non-woven matrix thus reinforced is suitable as a leather substitute in seat covers, book bindings and various items of wearing apparel.

(Some or all of the above items are covered by U.S. or foreign patents)

☆ ☆ ☆ ☆ ☆ ☆

Should you wish a more complete bibliography of current literature and new developments concerning acrylonitrile, we shall be glad to place your name on our mailing list.

As the pioneer producer of this exciting vinyl monomer, American Cyanamid has expanded its production facilities to assure users adequate supplies at low price. Write for technical assistance in your acrylonitrile research.

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## ODORANTS FOR MANUFACTURING PROCESSES

In the highly specialized industrial plants of today it is not unusual to find unpleasant odors associated with certain steps of a manufacturing process. Often this odor has nothing to do with the final article but is simply product of some processing factor... and is frequently strong enough to cause actual physical distress to plant employees. To dispose of this problem, more and more manufacturers are turning to the Industrial Perfumer for assistance. With his special knowledge of chemistry, plus his training and experience in masking or reodorizing unpleasant scents, the modern industrial perfumer can help to provide a solution that will pave the way to greater worker comfort and better employee relations. The D&O Industrial Odorant Labs and technical personnel are equipped and experienced in all phases of this problem. Consult D&O.



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ESSENTIAL OILS • AROMATIC CHEMICALS  
PERFUME BASES • FLAVOR BASES  
DRY SOLUBLE SEASONINGS

## RESEARCH . . . . .



**PICKING UP A POINTER:** With the desire to learn, a difference of opinion

originator" to such vague concepts as "top management," "the chemical research executive," and "an executive committee."

One answer to the problem of determining the tangible value of research was provided by keynoter Fred Olsen (Olin Industries' v.p. in charge of research and development) who reported on five years' experience in applying his Research Index of Returns to a complex of Olin's subsidiary firms.

**Art or Science?** Reaction to this highly formalized system was mixed. One vigorous dissenter claimed research management to be a "personal thing—art rather than science."

An unmistakable trend crystallized by the discussions is the growing desire to place research-guiding responsibility in the hands of specific individuals rather than committees. Significantly, two of the companies represented by the trekkers were Monsanto and General Electric, both of which have deemphasized executive committees. Moving with the current, Richfield Oil's C. A. Day revealed his company's plan to minimize the use of committees in administering a new research program that will operate independently of parent Sinclair Oil.

Second of its kind, the SRI tour has proved popular. In the future it's probable that two or more concurrent trips will be needed to keep the total number of participants in each to 30 (considered by SRI to be the upper limit for discussion purposes). As

things stand, 30 men have less than 4 minutes apiece to talk during each 2-hour session.

But in spite of some kinks, SRI's idea seems destined to continue its popularity with young, eager-to-learn research managers. Gratifying to SRI was the fact that, unlike last year's tour (made only by Westerners), this one included people from the East and Midwest.

**True Test:** On the whole, the tour participants believed they had received their \$200 worth. The tour's true value, however, will be measured by the amount of practical new information they take back to their research management jobs.



**PILOT-PLANT TOUR:** Found, new faith in the individual.

# Intermediates

*by* **TRUBEK**

The listed intermediates reflect over twenty years of experience in the development and production of organic chemicals. You will be pleased by our uniform, controlled quality and dependable deliveries.

We also invite your inquiries for commercial quantities of other fine organics. Among them, too, may be some you have been making for your own use but would prefer to buy, if you can do so with confidence. An energetic, resourceful research, engineering and production team welcomes the opportunity to work with you.

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ACETALDEHYDE AMMONIA  
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DIPHENYL METHANE  
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ETHYL PHENYLACETATE  
ISOVALERIC ACID  
METHYL PHENYLACETATE  
PALMITOYL CHLORIDE  
PHENYLACETAMIDE  
PHENYLACETIC ACID  
PHENYLACETONE  
beta PHENYLETHYLAMINE  
PHENYL PROPYL CHLORIDE  
POTASSIUM PHENYLACETATE  
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*and Other Intermediates*



INTERMEDIATES DIVISION  
**THE TRUBEK LABORATORIES**

(incorporated 1933)

East Rutherford, New Jersey

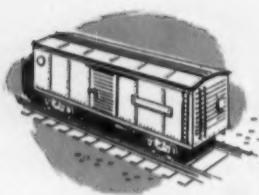


# STOP BAG SLIPPING WITH...

# Hudson's New



Unique "Bowling" trials show slip-resistance of Hudson Inks . . . Hefty two-hundred pounder slides equal weight multi-wall sacks down alleys with full force. Bag in left foreground with Hudson's new NON-SLIP INK stops in 20-ft. Ordinary sack (right) skids full length of alley for a strike. Here's proof-positive of NON-SLIP INK'S gripping power.



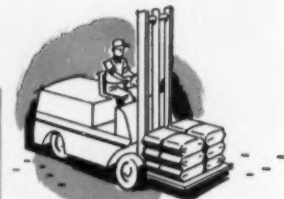
We humped a freight with half a carload . . . not a single Hudson Non-Slip Ink sack slid or broke!



Do you ship by truck? Buy Hudson Bags with Non-Slip Ink and watch your "Slip-break" losses shrink!



Non-Slip Ink puts an end to sacks sliding under their own weight and falling apart like a house of cards!



Sudden stops no longer mean sudden losses from bags that slip, slide and break!

# *Non-Slip Ink!*

## **...at no extra cost!**

### **Takes Skid Out of Your Bags!**

Again Hudson puts your shipping problems "in the bag" for you ... with this exclusive, specially developed NON-SLIP ink.

What's more, there's NO EXTRA charge for this ink! Stack this up with all the other superior features of Hudson multi-wall sacks and you know you're buying the best bags money can buy when you make the order out to *Hudson!*

### *Here's Why:*

**Best Protection** — cuts package loss caused by slipping — Takes rough handling in transit! Hudson strongest by far!

**Less Re-Handling** — because slipping in packing and storage is virtually eliminated — No double handling.

**Free Moving** — designed for perfect handling on chutes and conveyors.

**Labor Savings** — easier and faster to handle — No fumbling with Hudson's "Sure-Grip Multiwalls."

*Send for complete story today!*



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Yes! We'd like the whole story on Hudson's new  
NON-SLIP INK.

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RESEARCH . . . . .



JONES-DABNEY'S DABNEY (left): Opening the door to new paint products.

## Strengthening the Ties

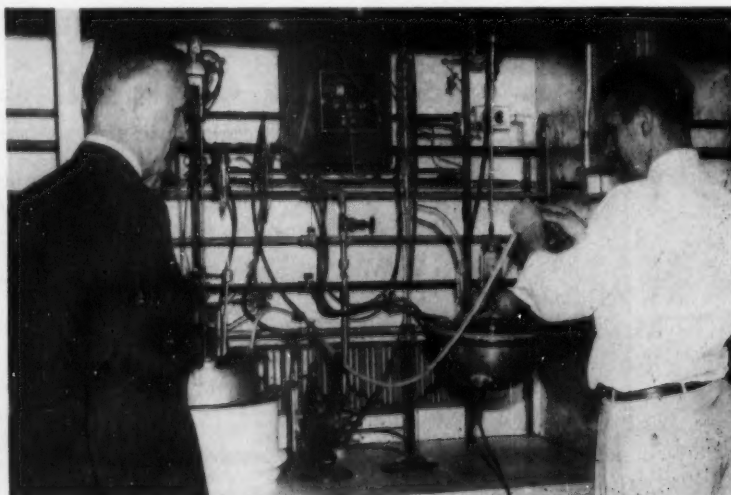
Last week, under the approving eye of pioneer paint-maker William Dabney, a new \$500,000 chemical research laboratory came to life at Jones-Dabney Co.'s Louisville (Ky.) headquarters.

More than a forceful showing of business optimism, commissioning of the lab reaffirms a long-term move to strengthen the scientific ties that bind paint-making to the chemical industry, points out Dabney, founder of Jones-Dabney and president of parent company Devoe & Raynolds.

Design of the new laboratory—hub of Devoe's research—is aimed at maximum efficiency for 50 employees in 21,450 sq. ft. of floor space.

Polymer research is sectioned into separate laboratories devoted to alkyds, nonphthalics (except epoxies and ureas), straight epoxies, and high polymers such as styrenated resins, vinyl polymers and copolymers, epoxy esters, and urea-formaldehyde resins.

Other labs are primarily concerned with formulation, comprise one each for appliance finishes, synthetic enam-

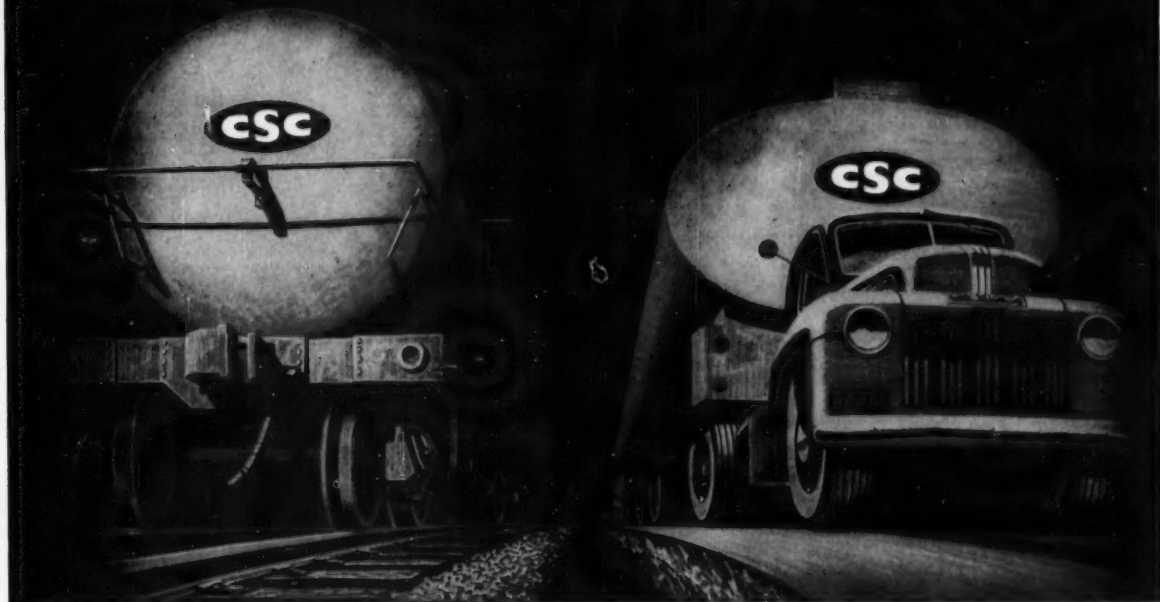


SYNTHESIS LAB: Spawning ground for paint polymer candidates.



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Usage for industrial alcohols has reached an unparalleled level during the past decade . . . creating a demand that Commercial Solvents Corporation, a pioneer in alcohol research and production, has answered by producing more ethyl alcohols and derivatives for the chemical industry.

Over the supply lines of America move the CSC fleet of tank cars and tank trucks, bringing these essential chemicals to industry from its nationwide network of strategically located plants and distribution points...ready to offer you unsurpassed service.

CSC ethyl alcohols are available in all formulas and grades to meet the most exacting requirements of the pharmaceutical and industrial trades.

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INDUSTRIAL CHEMICALS DIVISION

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May 22, 1954 • Chemical Week

87

# CHEMICALS FOR THE TEXTILE INDUSTRY

**Stauffer**  
CHEMICALS  
SINCE 1885

With the progress of synthetic fibers the textile industry has been one of the fastest growing chemical-consuming industries in the country. The combined production of synthetic fibers alone is estimated at about 160 million pounds for 1953. New plants in new areas are creating increased demands.

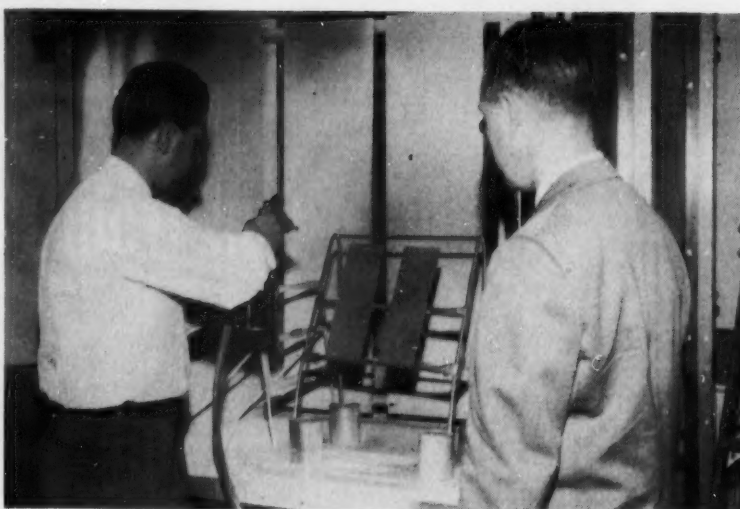
Stauffer has tank car quantity supplies of carbon bisulphide, caustic soda, sodium hydrosulphide, sulphuric acid, chlorine and other textile basic materials, which can be delivered with speed from plants located in areas convenient to textile manufacturing. In fact, eight carbon bisulphide plants mean that Stauffer gives you the advantage of several sources for rapid deliveries.

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## RESEARCH . . . . .



PANEL TEST: Hurdle for hopeful paint ingredients, it's on the road to . . .



. . . the pilot plant, production proving ground.

els (for farm machinery, toys, etc.), vinyl and lacquer coatings, dispersions. Aside from new physical testing facilities, Devoe has exposure racks in Florida and elsewhere for testing weather resistance of its products.

Operating closely with the sales division is a technical service laboratory, which does development work for other paint-manufacturing consumers of Jones-Dabney resins. (These formulas are not released to the rest of the Jones-Dabney organization, except with permission of the customer.)

Research-minded Devoe & Raynolds, which celebrates its 200th anniversary this year, is now spending about \$1 million/year on scientific activities. Even in the early '30s, when

most paint producers were retrenching, the company was investing \$250,000/year in research. Perhaps the outstanding result of this outlay is the many-talented epoxies (licensed for development purposes to Shell and Bakelite Co.).

And a large part of the new facilities' effort is earmarked for epoxy resins (Devoe's Devran) that are finding increased applications in industrial coatings (e.g., washing machines, can linings) and new markets in structural uses. But there'll be no neglecting alkyds, silicones, and other polymer standbys of paint manufacture. Targets: higher-molecular-weight polymers for water-based paints; reaction-type water paints that cure with heat.

*In problems of chemical processing —*

**VULCAN  
ENGINEERING  
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Whether your particular chemical process problem is of broad or limited scope, it will be worthwhile to review it in terms of one or more of these Vulcan services:

Economic and technical surveys

Preliminary process evaluations

Process development

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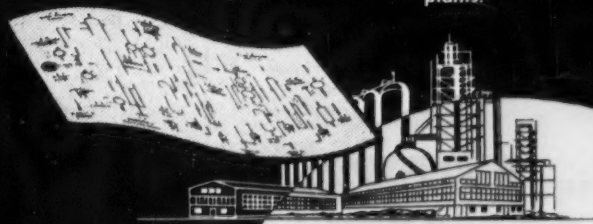
Process and plant design

Equipment design and procurement

Construction and erection

Initial operation services

... or the full integration of all these services in the design and building of complete process units or plants.



**...THE IMPLICATIONS FOR YOUR ORGANIZATION**

It's good business to discuss your process needs with the Vulcan Engineering Division. For when you do, the advantages of 53 years' organization service to the process industries become yours:

Years of specialized study and practical experience with varied process requirements and engineering problems . . . Extensive process knowledge, including many Vulcan-developed processes . . . Comprehensive development and pilot plant data . . . Up-to-date knowledge of new equipment, instrumentation and methods . . . A staff with the technical know-how and interest to handle your job so as to minimize plant investment without sacrifice of performance or product quality . . . And finally, the basic objectivity of an outside organization which serves the chemical industry throughout this country and abroad.

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BOSTON Mulesky & Griffin	CLEVELAND Norman G. Schabel Co.	LOS ANGELES E. B. Taylor Co.	PHILADELPHIA Lee & Dilworth, Inc.	SAN FRANCISCO E. M. Walls Co.
BUFFALO Weatherbee Chemical Co.	DETROIT D. H. Segard Co.	LOUISVILLE Deeks & Co.	PITTSBURGH B. Gatzert	SEATTLE Carl F. Miller & Co.
				TORONTO, CAN. A. S. Paterson

## RESEARCH . . . . .

### New Offerings

Here's how this week's crop of new chemicals shapes up:

- Two new surface-active cyclic tertiary amines available from Armour chemical division (Chicago) have solubility characteristics of possible interest to the wax, paper, and textile industries. They are N-coco-morpholine and N-tallow-morpholine (derived from coco and tallow amines, respectively). Both are soluble at room temperature in acetone, benzene, isopropanol, mineral oil, VM and P naphtha, tetrachloroethylene, and ethyl acetate.

- And from Armour research division comes word of pilot-plant production of a series of new n-alkenes (from fatty acids). Offered at present are 11-tricosene (23 carbon atoms) and 17-pentatriacontene (35 carbons). Straight-chain compounds with the point of unsaturation near the center of the molecule, they are readily soluble in nonpolar solvents, slightly soluble in acetone and the alcohols. Possible uses: components in polymer recipes, special solvents, and lubricants.

- The alkaloid narcotine, said to be the first nonaddicting opium derivative with antitussive (anticough) properties, is being tested by Merck & Co. for use in cough medicines.

- Vinyl film, which is resistant to animal, vegetable and mineral oil, is the latest Monsanto product. Called Ultron R 117, it is also reported to stand up to organic and inorganic acids, alkalis, and a wide variety of organic solvents. Claimed features: the new film is nonmigratory, will not attack paint and varnished surfaces. It is slated for trials in food packaging, plating, photographic and citrus fruit industries.

- A new "Dutch Boy" chemical from National Lead is a highly beneficiated hydrous magnesium silicate, tradenamed Ben-a-Gel. Suggested use: as a gelling agent for all types of aqueous systems—e.g., cleaning compounds, cosmetics, polishes, agricultural sprays, textile finishes, and water emulsion paints.

- Extremely low density is the chief claim for Davison Chemical's (Baltimore) new Syloid 244 silica gel. The material features fine particle size (less than one micron), is a candidate for antiblocking agent in clear plastic film; ink additive; cosmetic ingredient; thickener for pharmaceutical preparations.

- Benzyl mercaptan is Thiokol Chemical's (Trenton, N.J.) entry. It's put forth as a potential resin stabilizer and intermediate.

# Use DU PONT METHYLAMINES

*for an economical source of the amine group*

**AQUEOUS and ANHYDROUS**

- MONOMETHYLAMINE  $\text{CH}_3\text{NH}_2$
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- TRIMETHYLAMINE  $(\text{CH}_3)_3\text{N}$

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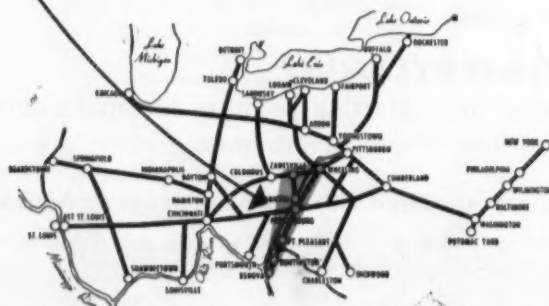
## Chemical executives with "20-20" vision KNOW that looking ahead pays off!

The past few years, the chemical industry and related plants and utilities have invested more than \$750 million in the B&O's Ohio River Valley—the *right spot*, with the *economic atmosphere vital to profitable production*.

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## RESEARCH . . . . .

### Chemical Comers

These new developments are supplying candidates for future commercial products:

- A new blood plasma extender identified as a cross-linked glutamyl polypeptide is the dividend of research by Veterans Administration in collaboration with Merck & Co. The new material is claimed to be more effective in its ability to attract water into the blood than is serum albumin, which normally maintains blood volume. Claims that the product can be prepared cheaply and in large quantities could pose a threat to dextran and PVP.

- University of Wisconsin Medical School workers have shown that 1-ethanesulfonyl-4-ethyl piperazine hydrochloride protects rats against severe burns. No trials on humans have been made as yet.

- And at Michigan State College's Dept. of Agricultural Chemistry, combined research with the Michigan Dept. of Health has shown that 3-indolecarboxaldehyde has high tuberculostatic activity "in vitro", and in mouse experiments.

- The Organic Chemical Institute at Utrecht, Netherlands, has found a promising new group of organic fungicides in a series of alkylene-bis dithiocarbamates (ethylene, butylene, hexylene, and octylene) and the corresponding diisothiocyanates. Evaluation is now under way.

**Amination Advance:** Chemists of the Du Pont Co. have recently demonstrated that ammonia, primary and secondary amines are converted to their nitrogen substituted alkyl derivatives by reaction with olefins. Key: an alkali metal or alkali metal hydride catalyst. The work could open the door to a storehouse of potentially useful new compounds. The three ethylamines, for example, were obtained in 70% yield by the reaction of ethylene and ammonia under preferred conditions (175-200 C and 800-1,000 atm.).

**Quick Change:** Conrad Inc. (Holland, Mich.) has designed a new industrial test chamber that can drop temperature from 600 F to -100 F in less than two hours. The unit simulates temperature range of high-altitude sonic flight, is used to test performance of aircraft parts. It has also been found useful, says Conrad, in chemical, petroleum, and pharmaceutical analyses; for tempering tool or special steels. Du Pont's Freons are used as the refrigerants.





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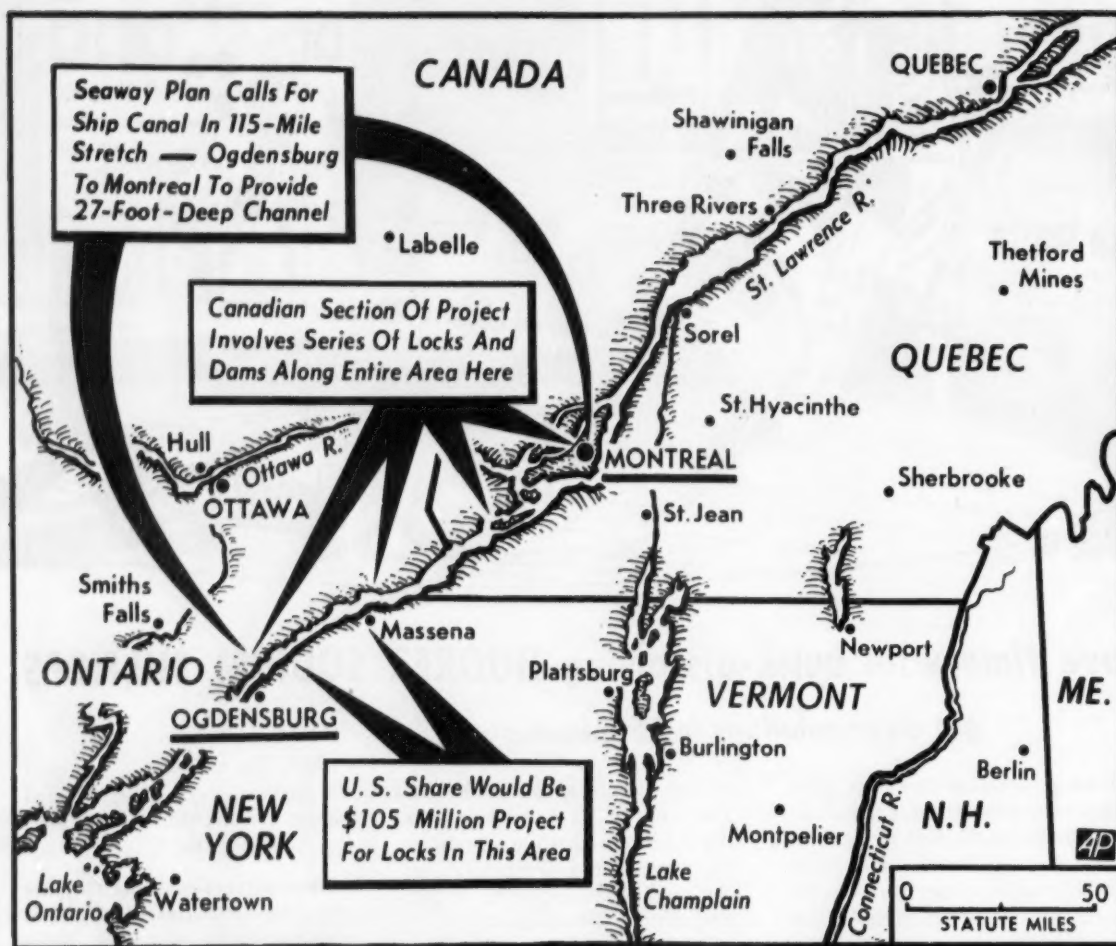
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# DISTRIBUTION . . . . .



ST. LAWRENCE SEAWAY: After 13 years of bogged-down controversy, the international dream comes true.

## The Ocean Comes to Toledo

The long-delayed Seaway, urged and argued for a generation is finally getting under way.

Chemical makers, assessing its effect on transportation, view outlook with mixed feelings.

Stalled 13 years, the joint development by the U.S. and Canada of the St. Lawrence Seaway, originally agreed upon in 1941, is apparently beginning to budge. Last week, when President Eisenhower affixed his signature to the bill authorizing this country to join with Canada in constructing the Seaway project, he signed a measure that every President since Harding had sought in vain. As finally approved, the bill provides for the establishment of a St. Lawrence Seaway Development Cor-

poration to act for this country under the President's supervision. President Eisenhower will appoint, subject to Senate confirmation, the corporation management—administrator, deputy administrator and five-member advisory board.

To finance the U.S. portion of the Seaway project, the bill authorized a \$105-million bond issue, which will be bought by the Treasury. The U.S. financing is similar to an action taken by Canada back in Dec. '51, when it voted \$300 million for an

"all-Canadian" Seaway following Congress' failure to authorize U.S. participation.

**Seaway Sharing?** With this country finally committed, at least to the extent of \$105 million, the Canadian reaction to the Seaway bill is decidedly mixed. Although municipal authorities along the St. Lawrence route are predicting industrial expansion and prosperity, the Canadian government points out that, having received no U.S. proposal of joint action, its official position of proceeding with its plans of going it alone is still in effect.

So far the Canadian government does not appear to regard the U.S. bill as an offer to participate with Canada in the over-all plan to open

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## DISTRIBUTION . . . . .

the Great Lakes to ocean traffic. Rather, our action to build a canal and locks along 46 miles of the International Rapids is viewed as strictly unilateral.

**Power Sharing:** Apart from the question of joint operation to build the Seaway, there's little doubt as to the future of the other joint operation, the development of hydroelectric power.

In fact, the Seaway, in the restricted sense of the 27-ft. International Rapids canal, first became possible last year when the Federal Power Commission granted the New York State Power Authority a license to build, with the Province of Ontario, a \$600-million power project.

Unsuccessful to date, opponents of the New York license, now whittled down to three groups, had only one remaining resort—the U.S. Supreme Court. And even this last chance is slim: appeals had to be filed by this week and the Supreme Court is almost certain to reject, before its summer recess, any petition that may be filed.

There seems to be little doubt, therefore, that the last legal obstacle to joint Seaway-power will be cleared away by June.

**Six Years Hence:** Provided all remaining legal hurdles and administrative actions are cleared promptly, initial contracts for lock excavation on the U.S. portion could be advertised by late fall. And on the basis of Congressional committee reports, there is no doubt that the U.S. Army Engineers will handle the job. They probably would finish by 1960.

That the opening of a 27-ft. channel from the Atlantic Ocean to Lake Erie (result of the present project) will bring with it some marked changes in the economics of distribution, few will doubt. However, opinion as to extent of impact varies considerably with the interest involved.

As may be expected, the big U.S. Atlantic and Gulf ports, long opposed to the Seaway, foresee, in varying degrees, a sharpening of competition and loss of business.

Some of the port views:

• **Boston.** While deploring the passage of the bill as a misfortune to Boston shipping interests, port leaders feel that their city will not be hurt as badly as more southerly ports. Reason: Boston, closer to Europe and the Continent, is at less of a disadvantage than other North Atlantic ports.

• **New York.** Predicting an annual loss of 15% of foreign tonnage, Austin Tobin, executive director of the Port Authority, believes that "about 3 million tons of general cargo will be di-

verted from New York." And because the diversion will be spread over only the seven- or eight-month Seaway shipping season, the impact is expected to render maintenance of efficient service especially difficult.

• **Baltimore.** Hitting directly at Baltimore's export grain trade and iron ore imports, the Seaway competition is expected to be especially hard felt.

• **Philadelphia.** Although they realize that the Seaway competition will make trade seasonal, leaders here are stressing the need and value of local improvements as vital to future progress. Forty-foot channels, of sufficient depth to take most ocean-going vessels, are being urged.

**The Pros:** Along the line of Seaway traffic, reaction is tempered both by where and who one is.

In Montreal, for example, feelings are mixed and lukewarm. Main reason for lack of enthusiasm: fear that Montreal may become a whistle-stop on the run into the Lakes. But despite strong sectional feeling against the Seaway, leaders concede that the project will benefit Canada as a whole, and should therefore be accepted without reservation.

Farther inland, as may be expected, enthusiasm for the Seaway runs much higher. But even at strategically advantageous spots, opinions vary with particular interests.

A quizzing along the U.S. shore yielded these reactions:

• **Massena.** Bells and whistles, celebrating "Seaway Day" greeted the news of the Congressional approval. Residents hail the action as a full victory in a long fight for river development.

• **Cleveland.** While the consensus is that industry here stands to benefit, most enthusiastic by far are firms whose interests include holdings in Labrador or parts of Canada not now easily reached by lake vessels.

A sampling among chemical companies in Cleveland, none of which has substantial Canadian holdings, revealed these possible benefits:

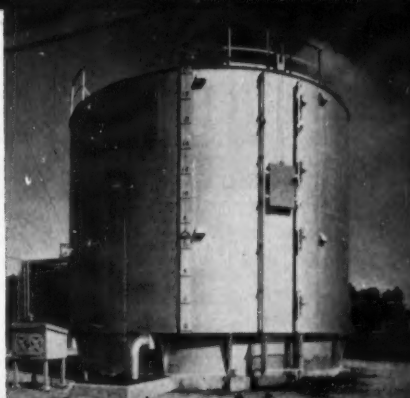
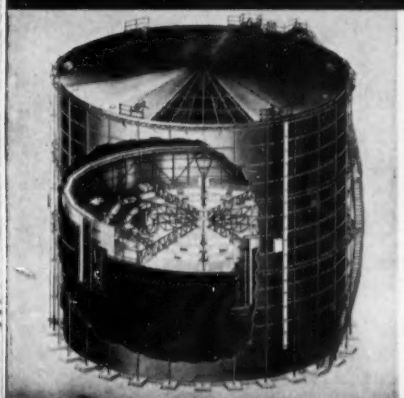
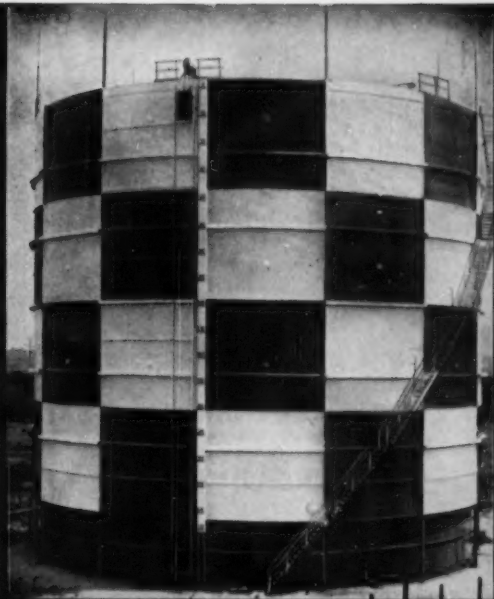
• **At Diamond Alkali, Treasurer A. W. Crossley,** while conceding that the Seaway won't mean as much to his company as it will to, say, auto makers, nevertheless anticipates that the Diamond Painesville plant can be expected to benefit. Primary advantage: lower import costs on chrome ore, now being brought from South Africa to the Eastern Seaboard, thence by rail.

For some time Diamond has been toying with the plan of bringing in ore via 2,300-ton tramp steamers, which can squeeze through the pres-

**simple! proved in use!**

# Wiggins Gasholder

**BY GENERAL AMERICAN**

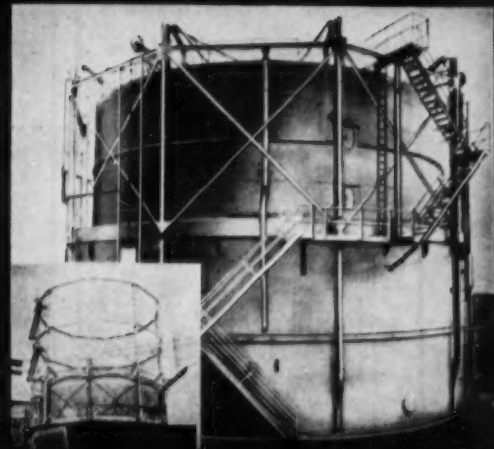
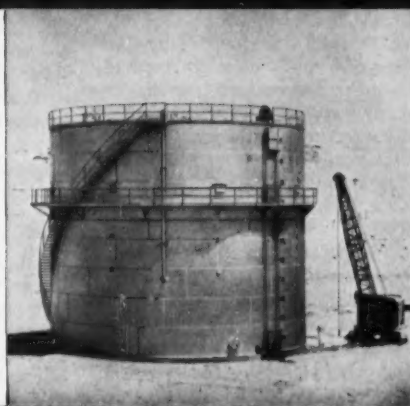


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## DISTRIBUTION .....

ent locks. Barrier to this plan has been the lack of return cargo. But Crossley expects chrome will come via an all-sea route when the Seaway permits entry of larger steamers.

As he points out, the docks at Painesville, like many others along the Seaway route, will have to be extended and the harbor areas dredged to permit larger ships to dock.

• Also at Cleveland, B. F. Goodrich Chemical cites advantages of the Seaway. Goodrich ships overseas F.A.S., i.e., the company pays the rail freight whether it's to Cleveland or to New York City. With the Seaway, there may be a decided advantage, for example, in shipping synthetic rubber and plastic resins made in or near Akron. They would move by rail only as far as Cleveland instead of riding the tracks all the way to New York.

• Toledo. Most westerly port of call for the sea-going ships, this city is understandably enthusiastic over the St. Lawrence development. However, before it can handle expanded traffic, Toledo must overcome a serious limitation: inadequacy of berth space.

• Midwest. Enthusiasm, moderately high at well-positioned Cleveland and Toledo, tapers off rapidly farther inland. Because channels and harbors beyond Toledo are too shallow for the bigger ships, only moderate increases in shipping are expected.

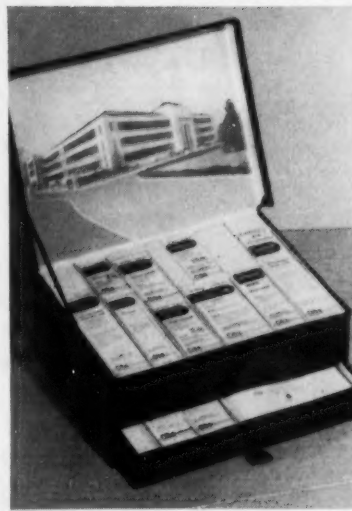
Typical attitude is that taken by Louis Block, president of Blockson Chemical Co. (Joliet, Ill.):

"We think it's a good thing—like anything else that's done to open up the country economically or to improve our transportation network. The Seaway won't affect Blockson.

"We already have the full benefit of year-round river transportation and wouldn't gain by the six-month season of the Great Lakes. Foreign competition might result, and bother some companies, but our products are low-cost, high-tonnage items with almost no prospect of foreign competition arising as a result of the Seaway."

**Good For Whom?** U.S. chemical makers in general are inclined to echo Block's opinion. Most feel the Seaway would mean little to their individual operations; a couple, who have been rumored to control tracts along the route, deny that the Seaway would have any special significance to them.

Those who declare themselves agree that the Seaway is justified—if only for one reason, the same reason now as when it was argued through years of debate: the development of Canada's natural resources.



**PRIZE PACKAGE:** Ciba rates tops in NPBMA contest for ...

## Sales-Packing Setups

This week American box designers displayed at Chicago their latest syntheses of sales appeal and utility. The event: the fourth annual Set-Up Paper Box Competition of the National Paper Box Manufacturers Assn.

For the "General Superiority According to End Use" award, Ciba Pharmaceutical ranked first among the drug and chemical contestants with the Ciba sample box.

Runner-up was the Barry Laboratories' skin test allergy kit, to hold 79 vials securely between two platforms. A printed list on the upper level identifies the contents.

Two other drug firms received honorable mention: Wilson Laboratories, for a telescoping box for single-dose vials; and Smith Kline, & French Laboratories, for a sample box.

Besides the "general superiority" class, awards were also made for three other sales assets: surface design and execution; construction; and display. In choosing the winners, the judging panel of designers, users and fabricators considered:

- Protection of product.
- Appropriateness of the package.
- Display value.
- Brand identification.
- Convenience in packing and customer inspection.
- Sales appeal.

All told, 44 first awards and 26 honorable mentions were presented. After the exhibit ends, the sales-packing packages will tour the Box Assn.'s divisional meetings.

**Chemical Week • May 22, 1954**



...when you buy  
**Neville Chemicals**  
 you buy protection



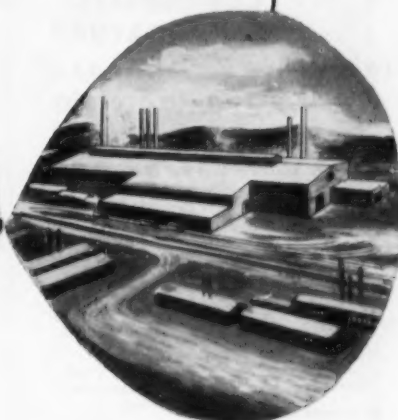
*In the Home*

Mastic floor tile now lasts longer and is made better due to Neville Resins. Common household items, like drain mats and bathroom mats, molded rubber products, even phonograph records, are far more durable, thanks to the use of Neville Resins. And rubber wire insulation, manufactured with these modern resins, protect the home.



*On the farm*

Neville Phenothiazine, used in proprietary medicines, protects cattle against disease. Neville Aromatic Solvents, used in making Insecticides and Herbicides, protect farm crops, and Neville Resins insure citrus preservation. Neville Resins also are used to make aluminum paints for farm buildings and Neville Shingle Stain Oils preserve wood surfaces.



*In Industry*

Coatings made from Neville Resins and Solvents protect valuable equipment, buildings and finished products from corrosion. Adhesives, floor tiles, foundry core oils, insulation compounds and rubber products—all do their job better because of Neville Resins.

Yes, when you buy Neville Chemicals, you buy protection . . . protection against the elements, against wear and tear, even against cattle and crop diseases . . . protection that comes from years of experience and research in this field.

**NEVILLE CHEMICAL CO.**

PITTSBURGH 25, PA.



Plants at Neville Island, Pa., and Anaheim, Cal.

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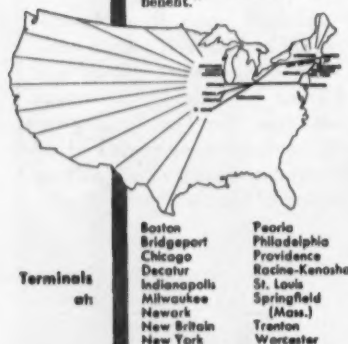


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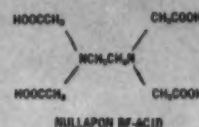
By this careful meshing of forecasting, planning, and control, Lilly finds excessive inventories can be avoided as well as the risk of unavailability. All of which works out to a satisfied customer.

\* L. to R. R. E. Heine, asst. director, Production Planning Div.; C. R. Miller, vice-president, Production; E. F. Ratliff, administrative assistant to General Manager of Operations; K. F. Griffith, director, Market Research Div.



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	STANDARD LIQUID	CONCENTRATED LIQUID	DUSTLESS FLAKES	TECH. PURE ACID. POWDER
Active* Principal	Tetra Sodium Ethylene-diamine Tetraacetate 25-27%	Tetra Sodium Ethylene-diamine Tetraacetate 38-40%	Tetra Sodium Ethylene-diamine Tetraacetate 78-80%	Ethylenediamine Tetraacetic acid (Tech. Pure) 99%
Physical Form	Clear Liquid	Clear Liquid	Non-hygroscopic Flake	Powder
Density	1.2 (10 #/gal)	1.3 (11 #/gal)	.6 (5 #/gal)	.7 (6 #/gal)
Molecular Weight of Active Ing.	380	380	380	292
100 Parts of Nullapon Controls	6.7 parts CaCO <sub>3</sub>	10.0 parts CaCO <sub>3</sub>	20.0 parts CaCO <sub>3</sub>	33.5 parts CaCO <sub>3</sub> when used in alkaline solutions
or ... 1 oz. by weight in ten gallons of water controls	49 PPM CaCO <sub>3</sub>	73 PPM CaCO <sub>3</sub>	146 PPM CaCO <sub>3</sub>	245 PPM CaCO <sub>3</sub> when used in alkaline solutions
STANDARD PACKING	500 lb. Drum 50 lb. Drum 10 lb. Drum	500 lb. Drum 50 lb. Drum 10 lb. Drum	200 lb. Drum 25 lb. Drum 5 lb. Drum	250 lb. Drum 25 lb. Drum 5 lb. Drum

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FOG-PROOF!**



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**H. S. COVER, South Bend, Ind.**

**For spec-checkers:**

## How to spot top fatty alcohols

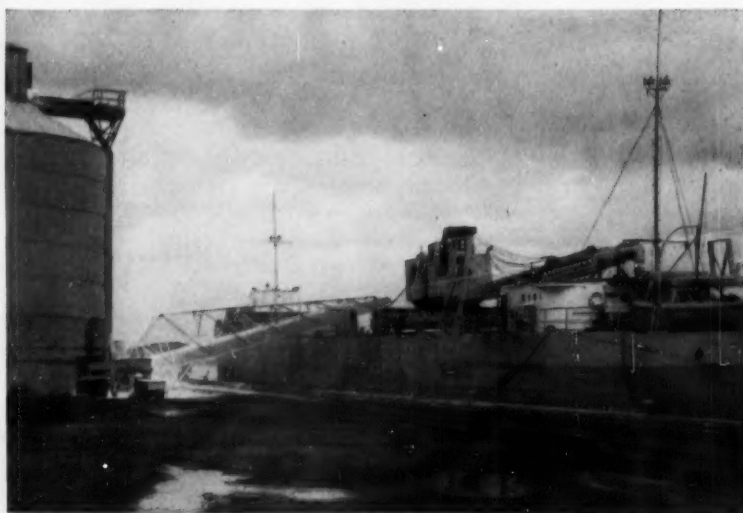
Two indicators that chem-men go by when they specify fatty alcohols are low saponification and acid values. So it's natural to expect that CACHALOT brand rates high on the low score: sap. values below 1.0, acid values well below 0.1.

CACHALOT cetyl, oleyl, and stearyl alcohols get this way because they're vacuum-distilled by methods that have been worked out in over a quarter century of fatty alcohol production. The extra care with which all grades—NF, USP, technical—are made pays off in the trouble-free way these raw materials behave in your product.

Dozens of uses for CACHALOT as additives and intermediates are in the booklet on "Possibilities". For your copy, phone Digby 4-3878 or write M. Michel and Company, Inc., 90 Broad Street, New York 4, N. Y. Basic suppliers to chemical manufacturers, their trade name for the largest line of fatty alcohols commercially available in tonnage lots of controlled uniformity is

**Cachalot**

DISTRIBUTION . . . . .



**SHUTTLE SERVICE:** Direct loading from production or self-unloading at . . .



. . . destination, emphasis is on economy as Wyandotte test runs its . . .

## Midwest Water-Trailer

Early one overcast morning a few days ago, a strange looking barge, pulled by a little tug, hove into view on the Calumet River on the south edge of Chicago. The occasion: the maiden run of Wyandotte Chemical's new "Tractor-Trailers" service, a chemicals-carrying system of barges designed to shuttle between Wyandotte's plants just south of Detroit and the Midwest gateway at Chicago.

By 10:30 that morning, a specially made clamshell bucket had been attached to a crane mounted on the barge, the first bite of soda ash lifted from the vessel and transferred into the hold of a customer river barge.

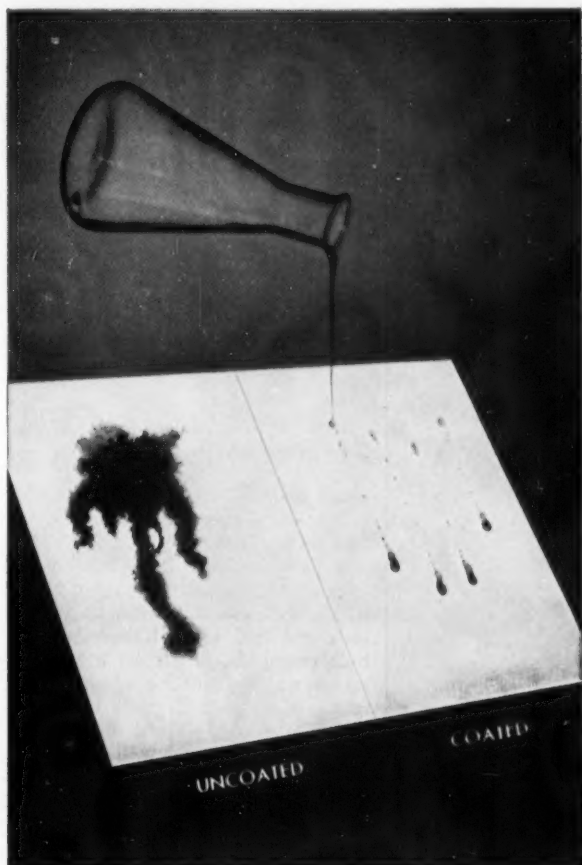
The successful trial run by Wyandotte was made in equipment rented for the occasion, but the company will place in service a triad of its own vessels, specially fitted to transport soda ash, caustic soda, other miscellaneous products.

Three 450-ft. converted iron ore freighters will soon be making the "Tractor-Trailer" run. With a total capacity of 22,500 tons, these vessels will serve the growing phosphate, detergent and glass manufacturing industries in Illinois, Indiana, Missouri and surrounding regions of the Midwestern river systems.

A subsidiary, Wyandotte Transport-

# METHOCEL

forms tough, colorless coatings



This uniform, synthetic gum by DOW forms water-soluble films and coatings that resist most greases, oils and waxes . . . improves many products from capsules to paper sizings.

Here's a film forming material that can meet your most exacting requirements. Methocel® (Dow methylcellulose) gives you a sizing or coating that is tough, clear, strong and flexible. It is water-soluble, yet resistant to mostly all greases, waxes, oils and solvents. These coatings are tough right through a wide range of temperatures, too, minimizing breakage.

The effective thickening, binding, suspending and stabilizing actions of Methocel have also solved many problems of manufacturing economy and simplification. Offering you a greater viscosity range than any other gum, Methocel is available in nine types from 10 cps. to 7,000 cps. Five grades are available, including N.F. Grade, for applications requiring high purity. The broad pH range allowable with solutions of Methocel eliminates many formulating problems.

Proved superior to other natural and synthetic gums, Methocel calls for your immediate investigation. Write for your free sample and comprehensive information to THE DOW CHEMICAL COMPANY, Midland, Michigan.

**SEND FOR YOUR EXPERIMENTAL SAMPLE**

THE DOW CHEMICAL COMPANY

ME-1191B-1 Midland, Michigan

Wide viscosity range of Methocel is available—please indicate use field \_\_\_\_\_

Name \_\_\_\_\_

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**THICKENER:** Methocel provides a very uniform low-cost viscosity control—a 2% to 3% solution of high viscosity Methocel thickens water so it will hardly flow!



**EMULSION STABILIZER:** Methocel acts as a protective colloid and depressant for the surface tension of water . . . improves paints, pharmaceuticals, cosmetics, polishes and latexes.



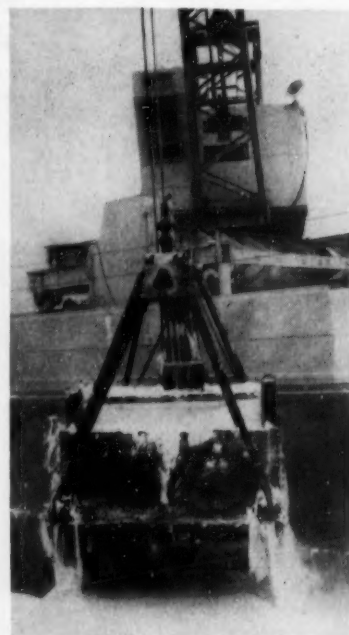
**SUSPENDING AGENT:** Methocel effectively minimizes the settling or caking of dispersed solids in aqueous systems such as paints, polishes, cosmetics and many other products.

you can depend on DOW CHEMICALS



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TETRASODIUM PYROPHOSPHATE  
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DISTRIBUTION . . . .



**FIRST BITE:** Clamshell bucket scoops initial soda ash load from barge.

tation Co., will operate the converted freighters. Under the system, this is how they will move:

- One carrier will be loading at Wyandotte. Then, bearing up to 6,000 tons of soda ash, 1,000 tons of caustic soda and 500 tons of miscellaneous bulk chemicals, it will be tug-towed up Lake Huron and down Lake Michigan.

- The second, about three days ahead, will be ready to dock at slip #3 on the Calumet River.

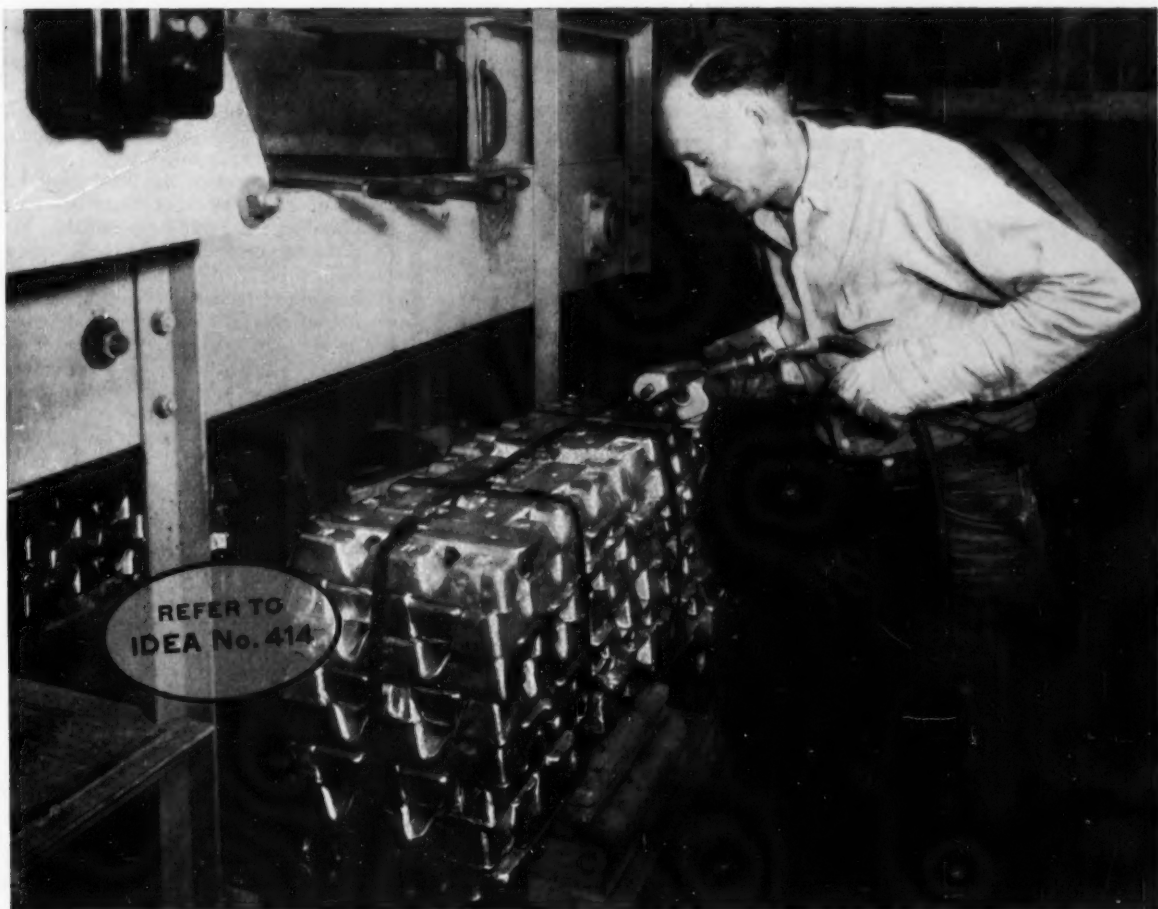
- The third, with its self-unloading equipment, will have transferred its cargo to trucks and river barges for shipment south over the Illinois Waterway. Then, loaded with eastbound cargoes such as sulfur, grain, sand and tallow, it will be towed back to Detroit.

- Total round-trip time will probably average eight days or less. Thus serving as floating warehouses, the three vessels will operate in a manner similar to a four-unit highway fleet of three trailers and a tractor; hence the name.

**Old Timer:** No novice in the water movement of chemicals, Wyandotte started shipping eastward in self-propelled barges as far back as the middle '30s. However, to move the large tonnages the company wished to ship into the Illinois-Indiana-Missouri area, the investment, according to V.P. Bert Cremers, would be prohibitively high.

Detailing his company's efforts to





## **AIM\*** for EASY, UNITIZED handling with Acme Steel Strapping Ideas



Fred C. Hartman,  
Los Angeles, was the  
Acme Idea Man who  
helped solve this  
unitizing problem

ask your  
**\*Acme Idea Man**  
to help solve your  
problems

Time consuming packaging of zinc alloy ingots has been eliminated at Morris P. Kirk & Sons by mechanized handling methods. Today, through the use of movable bins, conveyor lines and an Acme Steel Pneumatic Stretcher, heavy ingots move rapidly from the casting department and are quickly strapped for loading onto carriers. The Acme Steel Strapping method (Idea No. 414) in use at this Los Angeles plant has reduced the time required to prepare unitized loads by 25% . . . reduced labor costs by 25% . . . and increased storage space by 90%.

It will pay you to find out how you can improve your packaging or shipping methods. Ask your Acme Idea Man to demonstrate the Acme Steel Strapping and the Strapping Tools best suited to your operations. Call him, or write Acme Steel Products Division, Dept. TU-54, Acme Steel Company, 2840 Archer Avenue, Chicago 8, Illinois.

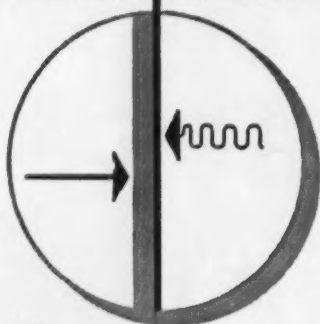
**AIM** For Safe, Lower-Cost Shipping

ACME STEEL CO.  
CHICAGO

**ACME  
STEEL**

*Where you need*

## HEAT EXCHANGE



*Be sure you have*

## SLIME CONTROL



Whether you heat or cool water for make-up, process or any other use, you will need Wallace & Tiernan Chlorination to help combat slime problems introduced by water-borne bacteria or air-borne bacteria.

With slime control equipment designed for any need, built for last-

ing and dependable service, highly accurate and backed by over 40 years of successful application experience, Wallace & Tiernan Chlorination can help you increase the efficiency of your plant and cut operating costs. For further information write our Industrial Division.



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• PRECISION PRESSURE INSTRUMENTS • CATHODIC PROTECTION • FINE CHEMICALS

CD-39

## DISTRIBUTION . . . .

move bulk chemicals most economically through the Great Lakes and down the Midwestern river system, Cremers reasons this way:

A movement of this kind must be cheaper than by other means of transportation. A large ship suitable for transporting wet or dry bulk cargo cannot be used on the river system because of its draft. (The Illinois Canal, after all, is only 8½ ft. deep in places.) And in addition, use of a large lake ship under its own power would necessitate large storage areas for transshipment at Chicago; for, to operate economically, that type of carrier must be unloaded quickly.

**No Ducks:** On the other hand, continues Cremers, moving a load of chemicals in a river barge is not practical because towing charges to haul the relatively small amounts that could be carried would cancel any savings before the barge even reached Chicago. Grouping six or more such barges to make one tow is constantly done on the canals and rivers, but it isn't feasible on the Great Lakes. Adverse weather could scatter the barges of such a tow like ducks on a pond.

Wyandotte believes it has arrived at the answer to the shipping of bulk chemicals over a combination of various waterways.

Some advantageous features cited for its to-be-converted ore freighter system include:

- Direct loading from production (*see cut*), eliminating the large storage normally necessary for quick loading of big tonnages.
- Quick unloading, accomplished through self-unloading deck cranes.
- New Highway:** Wyandotte estimates that its shipping costs will be competitive with any movement of bulk chemicals over any comparable distance by water.

The company, as evidence of its faith in the shuttle system, expects:

- To begin full-scale operation during the present shipping season.
- To expand the service during successive seasons.

Cremers is convinced that a new highway for tractor-trailer shipments of bulk chemicals—the Great Lakes—is in the process of development.

### For your reference:

- A brochure by Armour (Chicago) on its Neo-Fat 18-84, double-pressed stearic acid.
- A booklet titled "Organic Acids," by Carbide and Carbon Chemicals, supplying technical data for eight of its commercial acids.
- California Spray - Chemical's

INQUIRE ABOUT

# Oronite POLYBUTENES

for superior calking and sealing compounds



The non-drying properties of Oronite Polybutenes make them useful in conjunction with oils and fillers in permanently pliable sealing compounds. Their low temperature flexibility characteristic makes them ideally suited as binders in both knife grade and gun grade types of calking compounds, or the related sealing, insulation or sound deadening mastics. Being competitive in cost with most blown vegetable oils, a proper balance of fillers, oil and Oronite Polybutene can provide most any desired characteristic. Being natural moisture barriers they improve the water resistance of crack-sealing compounds. Write any Oronite office for complete information.

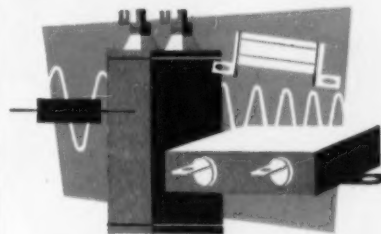
## ORONITE CHEMICAL COMPANY

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30 Rockefeller Plaza, New York 20, N. Y. • 600 S. Michigan Ave., Chicago 5, Ill.  
Mercantile Securities Building, Dallas 1, Texas



### ADHESIVES

Easily incorporated into rubber base stock, either by milling or solvent pick up, Oronite Polybutenes have a wide acceptance in the formulation of pressure sensitive adhesives, industrial tape, surgical tape masses, colorless label adhesives and cements.



### ELECTRICAL INSULATION

Oronite Polybutenes offer superior dielectric strength, low expansion coefficient and low power factors—all essential in paper-insulated electrical products. Their low power factor values, over a wide frequency range, make them useful as a dielectric in condensers and capacitors. Stability of this power factor is maintained over long periods of time.

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Detergent Alkane  
Detergent Slurry  
Detergent D-40  
Detergent D-60  
Dispersant NI-O  
Dispersant NI-W  
Wetting Agents  
Cresylic Acids  
Gas Odorants  
Lubricating Oil Additives  
Sodium Sulfonates  
Purified Sulfonate

Phenol  
Naphthenic Acids  
Phthalic Anhydride  
Maleic Anhydride  
Para-Xylene 95%  
Ortho-Xylene  
Kylol  
Aliphatic Acid  
Acetone  
Hydroformer Catalyst  
Dispersant FO  
(Furnace Oil Inhibitor)





**Acylation**

for versatile  
performance, try . . .

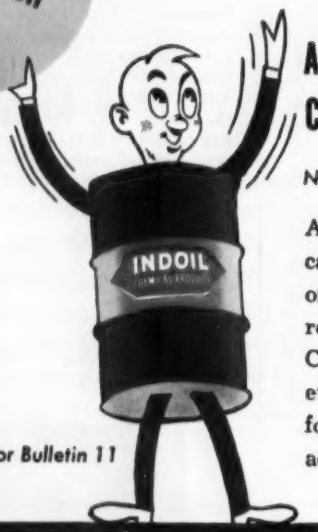
**Condensation**

## Alkanesulfonic Acid

**Esterification**

**Polymerization**

**Alkylation**



Send for Bulletin 11

### A strong, recoverable CATALYST

Nonsulfonating • Nonoxidizing

An unusually effective catalyst where degradation of sensitive organic reactants must be avoided. Contains 94% methane-, ethane-, and propanesulfonic acids; 1% sulfuric acid; 5% water.

## INDOIL CHEMICAL COMPANY

910 South Michigan Avenue, Chicago 80, Illinois

### DISTRIBUTION . . . .

(Richmond, Calif.) pocket guide for the use of its livestock pest control chemicals.

- A booklet, "How To Save Money On Caribbean Shipments," by Alcoa Steamship Co. (New York). Maps and charts indicate best ports for particular areas.

- Welded steel barges of all types for river and harbor use are described in an illustrated booklet just published by Dravo Corp., Pittsburgh. One section describes applications of barges by petroleum and chemical industries.

- Dodge & Olcott, Inc.'s (New York), brochure, "How the D&O Laboratories Serve You," outlining the scope of the company's service, control, and research activities.

- Injection Molders Supply Co.'s (Cleveland), leaflet on its aerosol silicone spray for mold release.

**Packaging Roundtable:** Southwest packaging men will converge on St. Louis May 27 for a one-day packaging forum. Agenda theme: "Management's Approach to Packaging." Packaging, purchasing and marketing men will express opinions on subjects varying from packaging machinery operation to materials and testing methods.



### Orlon Plug

ONE WAY to promote a fabric is to stage a stunt emphasizing its major assets. With this in mind, Donnybrook, New York coat manufacturer, demonstrated water resistance of Orlon with an underwater fashion show. Crowning of "Lady of Orlon" climaxed the Orlon promotion at Silver Spring, Md.

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**WHITER!**

**WHITER!**

**because REYNOLDS  
ALUMINA TRIHYDRATES  
are Organic Free**

Whiter than white . . . purer than pure! That's probably stretching the point. But leading alum producers have found the whiteness and purity of Reynolds Alumina Trihydrates enhances the quality of their product . . . and reduces manufacturing costs.

Available only from Reynolds, these premium chemicals sell for standard prices. They also eliminate bleaching, cut foaming and chlorate contamination, will not cause color streaking.

Reynolds Organic Free Alumina Trihydrates can help improve your products and reduce costs. For full details call your nearby Reynolds office listed under "Aluminum" in the classified telephone directory, or write Reynolds Metals Company, 2569 South Third St., Louisville 1, Ky.

Write for free brochure on "Reynolds Aluminum Chemicals" to the address above.

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The staff of each Reynolds regional office includes chemical and other engineering specialists to help you save time, money and labor with aluminum chemicals, shipping containers and mill products. When further consultation is desired, there is a fully integrated technical staff at Reynolds headquarters.

See "Mister Peepers"  
Sundays on NBC-TV.  
Consult local listings  
for time and station.



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**CHEMICALS**

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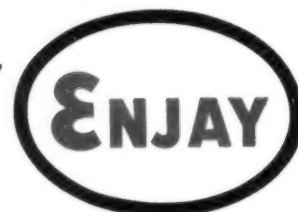


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products  
that win  
dependable  
customers...  
specify**



34 successful years of leadership in serving industry

Products that deliver dependable performance win steady, satisfied customers. And where performance counts, you can count on Enjay.

Enjay supplies a complete line of uniform, high quality petroleum chemicals to the surface coating, chemical and petroleum industries. You are assured proved results with every Enjay product. Backed by 34 years of research, experience and know-how, each is designed to meet industry's most precise specifications and characteristics.

But don't consider Enjay for your present chemical needs alone - Enjay is also ready to assist in developing new or improved products through chemistry. Present or future, be sure to specify Enjay.

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complete line  
of high quality  
petroleum chemicals

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PETROHOL  
Methyl Ethyl Ketone  
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Ethyl Ether  
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#### SURFACE COATING

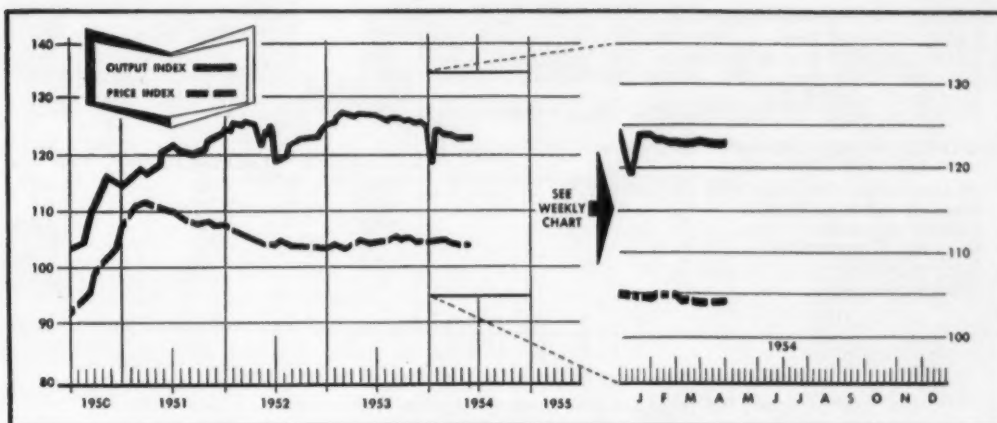
PETROHOL 91  
PETROHOL 95  
PETROHOL 99  
JAYSOL  
Secondary Butyl Alcohol  
Secondary Butyl Acetate  
Isopropyl Acetate  
Acetone  
Methyl Ethyl Ketone  
Dicyclopentadiene  
Ethyl Ether  
Isopropyl Ether  
Naphthenic Acids  
Iso-Octyl Alcohol  
Decyl Alcohol  
Denatured Ethyl Alcohol

#### CHEMICAL

PETROHOL 91  
PETROHOL 95  
PETROHOL 99  
JAYSOL  
Iso-Octyl Alcohol  
Decyl Alcohol  
Denatured Ethyl Alcohol  
Tridecyl Alcohol  
Dicyclopentadiene  
Isoprene  
Butadiene  
Ethyl Ether  
Isopropyl Ether  
Tetrapropylene  
Tripropylene  
Aromatic Tars  
Benzene  
Acetone  
Methyl Ethyl Ketone



# MARKETS . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries  
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

## MARKET LETTER

Prices are static but sales of many commodities are moving along with renewed zest. That's this week's chemical markets picture.

Brisker demand for ethyl alcohol, for instance, is not limited to any particular outlet; rather, the improvement is general—and most marketers credit the current low 40¢/gal. (pure, tanks) price for the upswing.

The recent 3¢/gal. slash in manufacturers' schedules (CW Market Letter, March 27) has, by this week, practically eliminated lower-than-schedule prices. But on the other hand, ethanol customers needn't worry about any immediate increases: producers' stocks, while not too heavy, are ample for the current buying rate; and capacity is large enough to handle any foreseeable future demand.

Although there's no dynamic surge yet in orders for most insecticides, makers and formulators are noting a promising pickup in some sections of the country, viz., the South and West.

For DDT specifically, however, the situation is such that domestic consumers may soon face serious delivery delays. The story: heavy overseas shipments—on General Services Administration orders—are dipping deeply into warehouse stocks. For example, GSA has just placed a 6.1-million-lb. order (of 75% wettable material) for May-June delivery to India, is reportedly considering another 5-million-lb. bid from the same country.

These and other overseas sales, which incidentally are being made at prices higher than the firm U. S. 27¢/lb., come during what should be the peak domestic-need season. Hence, suppliers, concerned somewhat over the unusual lack of forward buying here, may be temporarily stripped when procrastinating farmers and dealers finally get around to preparing for the heavy bug infestation expected this year.

In another area—benzol—a whittling of once-overflowing inventories and stepped-up demand from a number of outlets (insecticides included) have producers chalking up back-in-the-black business. That's a complete turnabout from the situation obtaining a short time ago, when sizable quantities were being funneled into motor benzol at distress prices.

## MARKET LETTER

### WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.2	123.3	126.6
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.3	104.3	104.2
Bituminous Coal Production (daily average, 1,000 tons)	1,129.0	1,113.0	1,472.0
Steel Ingot Production (1,000 tons)	1,688.0 (est.)	1,690.0 (act.)	2,250.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	303.1	298.7	251.1

### MONTHLY INDICATORS—Wholesale Prices (Index 1947-1949=100)

	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	114.6	114.2	113.2
Chemicals and Allied Products	107.2	107.4	105.5
Industrial Chemicals	117.4	117.9	117.0
Drugs and Pharmaceuticals	94.0	93.9	93.0
Fertilizer Materials	114.1	114.0	113.2
Oils and Fats	59.9	60.5	55.9

A few benzol sellers report that stocks at some shipping points—for the moment at least—have been completely dissipated. Price talk in the industry, understandably enough, indicates no softening soon in the firm 40¢ level.

What effect will now-under way steel negotiations likely have on the chemical marketplace? Consensus among observers: "none." There's very little likelihood of any steel walkout—with a cessation of concomitant coke-oven operations—this year.

Fact is, the current cutbacks in steel production are exerting a decidedly beneficial influence by balancing the supply/demand scale in the over-all aromatics markets.

It's a moot question whether mercury demand will soon fall into line with its scarcity. Sellers are attempting to discourage unnecessary buying via boosted prices. Latest quotes have the strategic material crowding a record-high \$265/flask (76 lbs.).

Prices, of course, are controlled by foreign suppliers, and scrambling by overseas consumers is contributing to the shortage here. No help to harried U. S. users, either, is Uncle Sam's moving into the market and sweeping the counters clean (CW Market Letter, May 15). But marketers close to the scene see a brighter supply outlook ahead: not all domestic producers—who closed down when prices were low—are back in; chances are they soon will be.

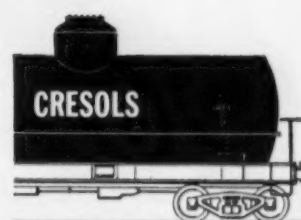
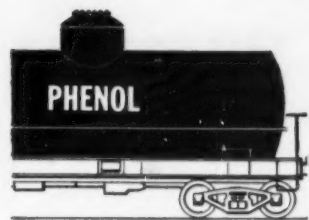
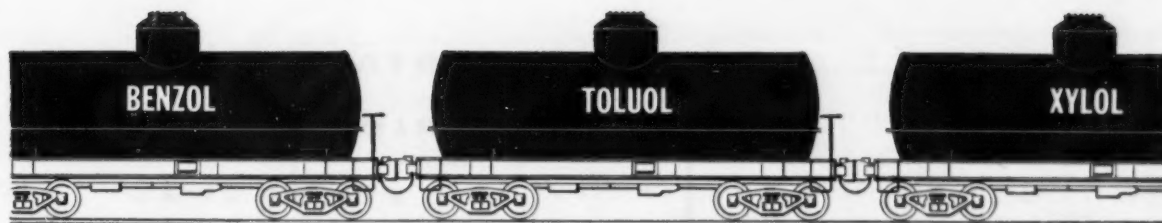
A possible ammonia surfeit? That's the question posed as the long-discussed government-assisted nitrogen expansion program moves another step forward. This week ODM, pondering certification requests totaling over 900,000 tons, notifies the successful applicants whose new facilities will cover the less than 200,000 tons required. Question: How many companies not getting certificates will expand anyway? If many of them do, it's a cinch the government's recent nitrogen target—3.5 million short tons by January 1957—will be overshot.

### SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending May 17, 1954

#### DOWN

	Change	New Price		Change	New Price
Carnauba wax, yellow, bags, ton lots			Methyl acetone, synth., tanks, frt. alld.		
No. 1, Ceara	.02	\$1.12	E., gal.	.095	.450
No. 1, Parnahyba	.01	1.15	Tallow, inedible, extra, tanks, divd.	.00125	.07375

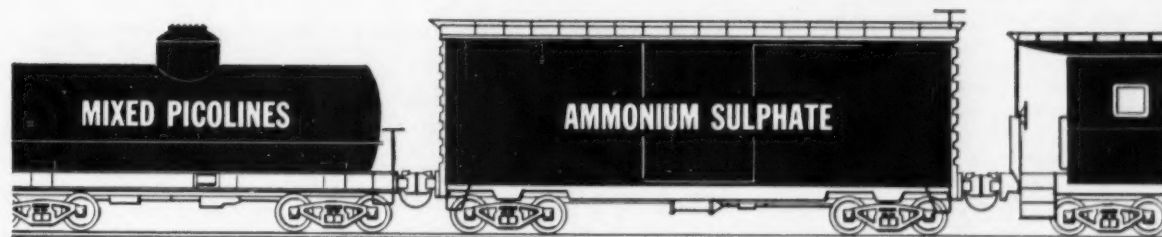
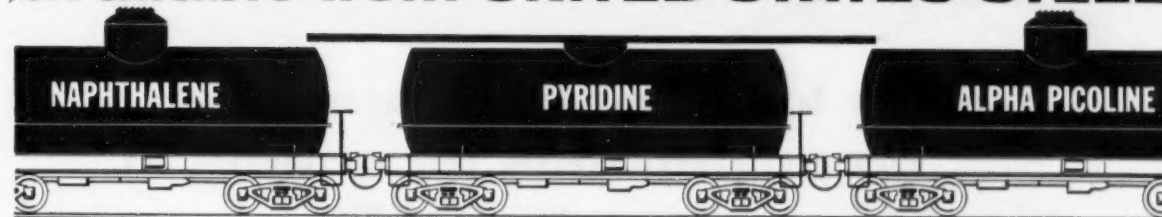
All prices per pound unless quantity is stated.



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*complete line*  
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Prompt and Efficient Service  
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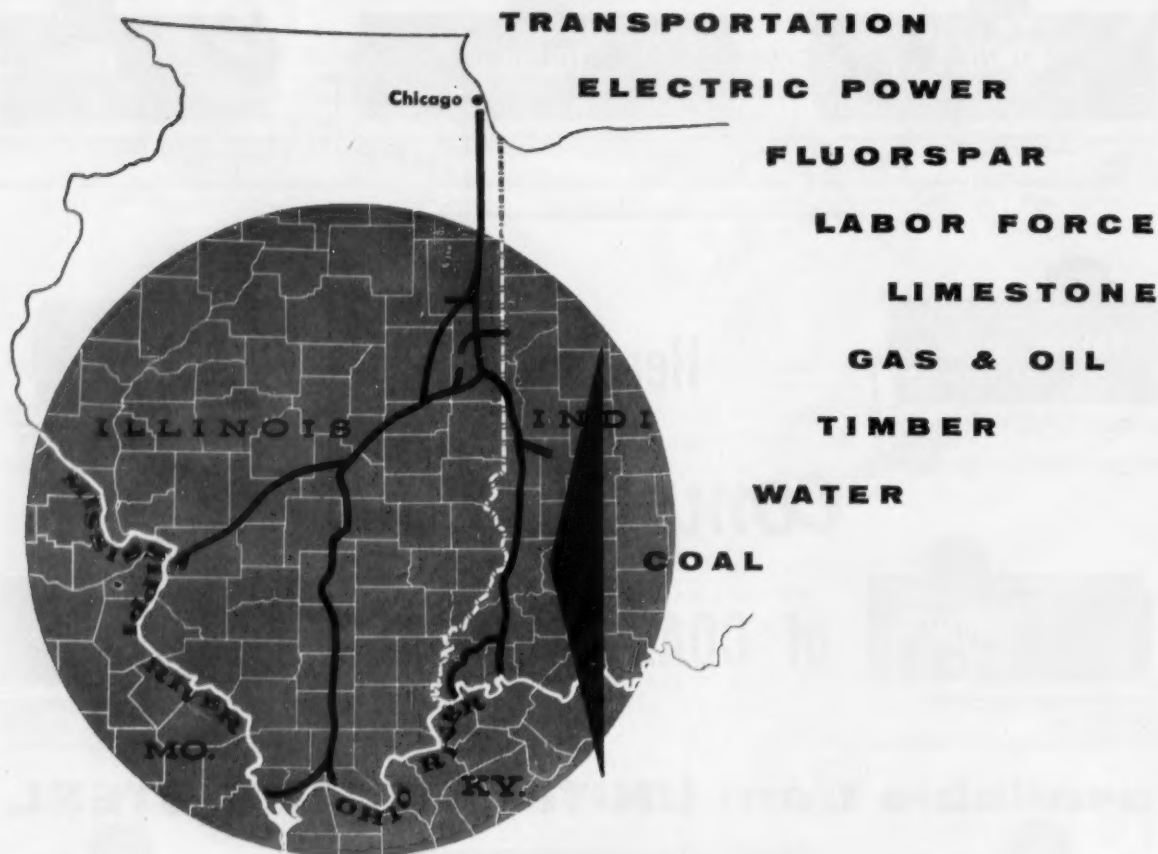
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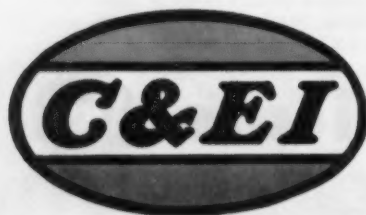
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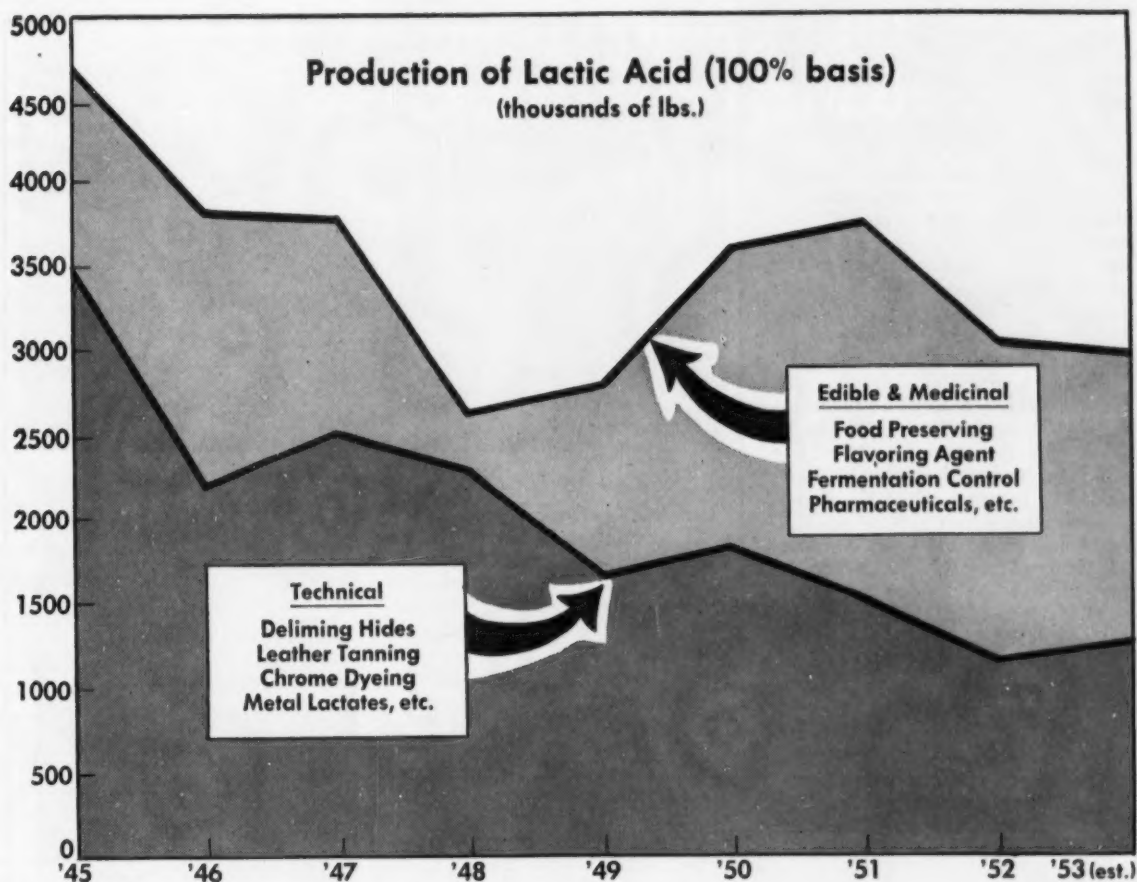
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## Lactic on a Level

Lactic acid, skidding since World War II years, may at last have hit bottom. Chances are, however, it will not foreseeably rebound as high as 1944's peak production rate of 8.6 million lbs./year, despite last year's slight increase over 1952 (see chart). A glance into the past reveals that lactic acid makers throttled output from 8.1 million lbs. in 1945, down to 6.0 and 6.3 million during the next two years.

Since then, production has tapered off from about 5 million lbs./year to just about half of the 8.6-million lb. wartime peak. The depressing decline can be chalked off to many lactic customers' veering toward less expensive acids, e.g., hydrochloric, acetic and formic.

But lactic acid still retains a firm hold on its major market—the food industry—chiefly because it is an easily digestible acidulant and flavoring agent.

No one characteristic sets lactic acid apart as unique, but underpin-

ning its food use are these properties:

- It's tangy but mild—milder than other food acids;
- It's odorless, doesn't mask or overpower other flavors or aromas;
- It's in a readily usable liquid form, yet doesn't lose its strength on standing.

Consumption in the food industry—either as acid or as a salt—represents about 40% of total lactic output (see end use pattern, p. 97).

One fairly steady demand is as an inhibitor of bacterial growth in pickles, olives, sauerkraut, mincemeat, relish spread, etc.

**Not Too Sweet:** Two qualities of fruit preserves and jellies that need precise control are sweetness and consistency. Lactic acid modifies the sweetness, without tainting taste or aroma, by inverting the sugar (sucrose). Proper consistency, too, depends on the pectin-sugar-acid gel produced in the approximate pH range of 2.5 to 3.5.

That same sugar-inverting charac-

teristic initiated its use in flavored syrups (for carbonated beverages), and other flavoring extracts.

Acidity rather than sweetness, however, is a common bugaboo plaguing brewers and bakers. Reason: the small amount of lactic acid naturally produced during fermentation contributes to an unwanted temporary water hardness as the acid reacts with some metallic salts in the water.

But resourceful process men, fighting acid with acid, add an additional quantity of lactic (about 2-3 oz. per 100 gal. of water), find this blocks the water hardening.

Other small but important lactic acid food uses include control of fermentation and neutralization, and as a digestion aid in buttermilk and baby foods.

From foods to pharmaceuticals is just a short hop for the purer grades of lactic acid. A multiplicity of drug compounding uses is based on the same necessary low toxicity and convenient pH. Add too, these pharma-

ceutical customer-inducers: lactic's miscibility with water, alcohol, glycerol and ether, and its syrupy consistency.

Currently, production of the edible and medicinal grades of lactic acids is on the order of 3 million lbs./year. Fact is, output for the most part over the past dozen years or so has hovered in a 2.7-3.7 million range. In one period, however, during and shortly after World War II, edible lactic pushed up to some 4.2-4.7 million lbs./year—largely because of the shortage of tartaric and citric.

Keen competition from such cheaper acids (on an alkali neutralizing basis) as acetic and formic at times tilts the output scale of the edible vs technical grades of lactic acid. For instance, while the former is now running near 70% of the total—and has since 1950—the technical has skittered from 46% in 1948 to the present 30%.

That's in contrast to the prior-'44 period when both grades were being produced at about the same rate, with the edible-medicinal type occasionally edging slightly ahead.

**Lactic for Leather:** The hide and leather industry is still the largest outlet for the technical (or crude) lactic. Deliming of hides and acidity control of vegetable tan liquors of late has taken an estimated 600,000-800,000 lbs./year (100% basis).

Actually, just how much lactic is used depends on the experience of the tanner and nature of the hides. It is usually desirable, though, to neutralize the calcium oxide carried by the skins—which may be as much as 6% (dry basis)—before they're put into acidic tan liquors.

Removal of the lime, besides maintaining the acidity of the tanning solutions, aids in producing a uniform quality of leather with improved color, graining and plumpness.

On the other hand, a higher-purity (plastic-grade) lactic goes into the manufacture of some phenol-formaldehyde type resins to neutralize the free alkali formed during the condensation reaction.

One advantageous lactic acid-neutralization result: clear salts that don't form strength-diminishing crystals in the resin.

Another good customer, the textile industry, shares in the poundage of lactic through its use by wool dyers in the chrome bottoming and topping of wool. The acid reduces the chromate, adjusts pH, wets and penetrates the fiber. A desirable hand is also imparted with no tendering of the fiber.



### Pipelines to Market

Cellulose acetate butyrate continues to tap new markets. In the first large-scale application of its kind, the butyrate, as lightweight pipe for water lines, will help push growth of slash pines seedlings\* at the Florida Forest Service nursery near Olustee.

More than 5 miles of the plastic pipe—in 20-ft. lengths of 1-, 1½-, and 2-in. diameters—was buried to a depth of 2 ft., after being solvent-cemented together with slip-sleeve couplings and tee joints, alternately. The latter provide outlets for revolving, spray head-topped 7-ft. risers.

The butyrate pipe—as was the case with most other plastics—eased into this particular field under a "substitute" label. The Forest Service's management chief, R. A. Bonninghausen, frankly admits first trying the plastic because galvanized pipe was scarce shortly after the war. He's now a plastic pipe booster: "We've found that the plastic pipe is easier to install, and it also stays free of the corrosion and incrustations that troubled us with metal."

**Add Kudos:** Such switches are nothing new to Eastman Chemicals, Kingsport (Tenn.), prime producer of the cellulose acetate butyrate (Tenite), which is extruded in pipe form by several fabricators. Last fall, for example, a 9-mile cross-country pipeline for transportation of crude oil was hooked up from a producing field in the Williston Oil Basin (Montana) to a shipping point on the Great Northern Railway. Score after 5 months' operation: 15%

\* An average of three-quarter million seedlings a day are shipped out of Olustee during the transplanting season.



more efficient than was at first thought possible; no operational difficulty; no accumulation of paraffin (which had given some trouble in steel lines).

Butyrate, of course, has no monopoly in the plastic piping field. Other materials—especially polyethylene, reinforced polyesters, epoxies, vinylidene chloride, styrene copolymers and, more recently, rigid vinyl—are edging into a number of old-time metal markets. Two of the newer invasions: as gas piping material for house service and mains (at the moment some 45-50 gas utilities are reportedly installing the easier-to-handle pipe for regular or test use); as underground conduits for power lines.

Indicative of the growing popularity of all corrosion-resistant plastic pipes are these estimates of cellulose acetate butyrate use: as recently as 1951 some 1.5 million lbs. went into piping; last year the figure was about 3.5 million—an impressive 133%.



**Lactic Acid  
End Use Pattern**  
(1953 est.)

Foods, beverages	40%
Chemicals (lactates, ad- hesives, etc.)	30
Hides and leather	15
Plastics and textiles	15

In dry cleaning fabrics, lactic aids in removing stubborn stains such as those from ink, coffee, wine.

**Lactate Outlets:** Apart from the acid per se, it's estimated that yearly output of metallic lactates has averaged about a million lbs. during the last two years—almost all of it the calcium salt.

(Some lactates are prepared as primary fermentation products, hence are not always significant lactic acid consumers.)

Much of the calcium lactate turned out winds up in foods or pharmaceuticals as a calcium-imparting nutritional additive.

Ranking a poor second to calcium lactate in pounds produced is the sodium salt. Moreover, sodium lactate—used mainly as a plasticizer and humectant in paper and textiles—has been undergoing a dramatic falling off. Note this output comparison: a mere 66,000 lbs. in 1952 (the latest figure available) as against 220,000 lbs. a scant 4 years earlier.

Of the three principal commercial esters of lactic acid now being manufactured (methyl, ethyl, and n-butyl lactates), the first two can be used to prepare high-purity lactic acid as well as the lactic esters of some higher alcohols. The ethyl and n-butyl lactates find use as lacquer solvents.

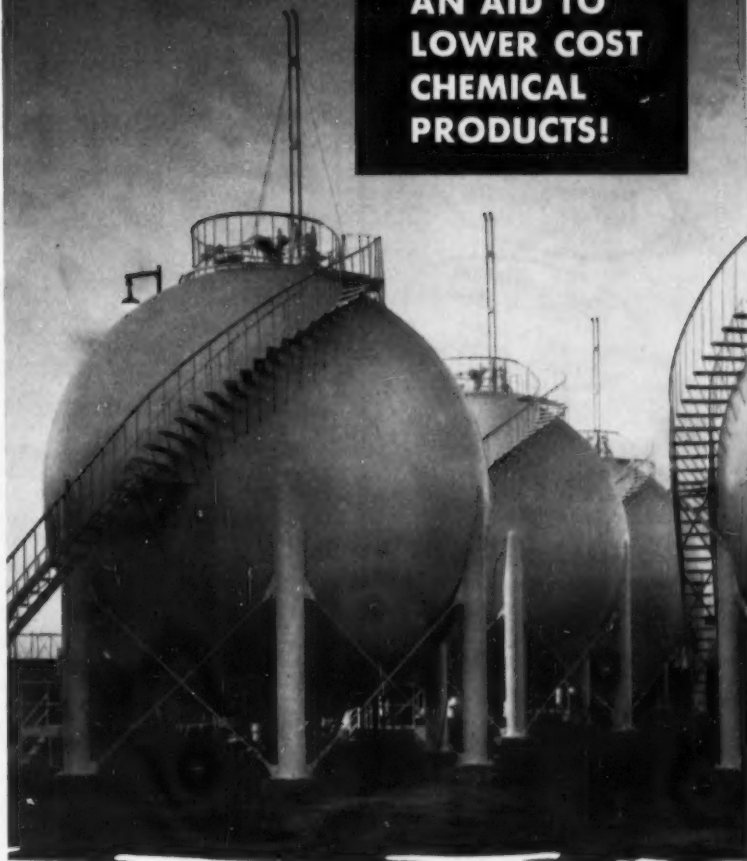
The latter, because of its slow rate of evaporation, prevents "skinning" in specialty finishes and acts as a "fugitive plasticizer" in some adhesives.

**No Mushroom Outlook:** Lactic acid makers don't envisage any sudden boom in sales, are in fact almost resigned to the comparatively low (vs wartime demand) current use.

At any rate the hope is that lactic acid has hit the bottom of the curve, may ease into a steady, albeit not a nimble, pace.

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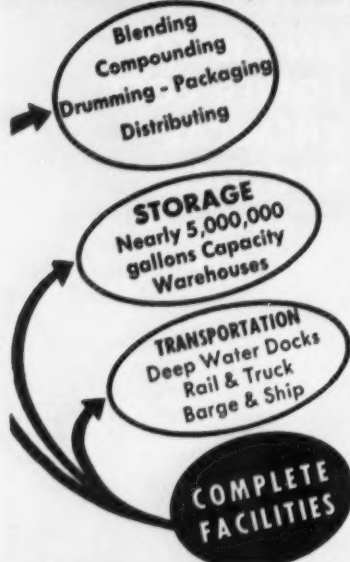
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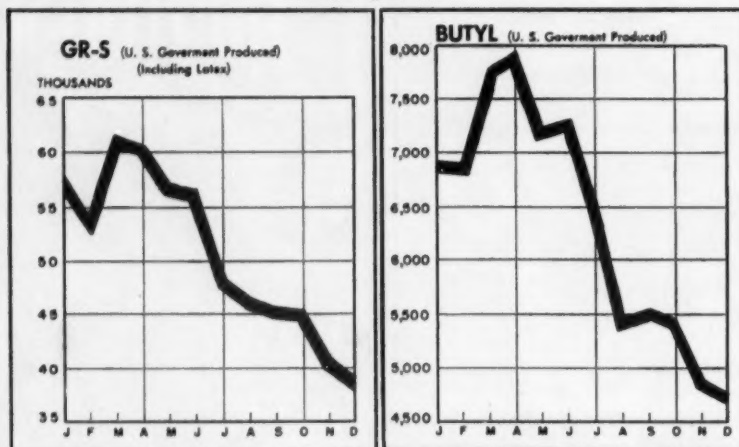
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## MARKETS . . . . .

### U. S. Consumption: 1953 (Long Tons)



### Rubber Reckoning

There may be a noticeable cooling, at the moment, of wartime's hot interest in synthetic rubber; but potential private producers (see p. 20), are nevertheless studying some production-consumption figures now available from two government agencies.

Late last week the U.S. Tariff Commission issued preliminary figures on U.S. output and sales of elastomers for 1953, and earlier this year the Rubber Division of the Dept. of Commerce's Business & Defense Services Administration toted its running monthly statistics (see charts).

Tariff's final report will be issued later, but the near-complete data indicate that U.S. production (total, all types) increased slightly in 1953 over the previous year while sales dipped. Output last year was some 1,958 million lbs. compared with 1952's 1,889 million.

The two reports vary slightly, but a study of both reveals some pertinent details. Despite a month's-long decline, domestic production of GR-S (polybutadiene-styrene) type still hit near 1.5 billion lbs. last year, topping '52's approximately 1.4 billion. Those are the amounts turned out in the now - for - sale government - owned plants. Actually, private industry producers made some 1.8 million lbs. in 1953, and the U.S. imported almost 26 million lbs.

On the where-it-goes side of the ledger, about 1,398 million lbs. of GR-S was consumed here, and 17.2 million lbs. was exported. Stocks in inventory at the end of last year stood at 302.7 million lbs., significantly towering over the 187.8 million of the previous end of year.

Bulk of the GR-S, of course, went into the production of pneumatic tires.

**Acyclic Accounting:** Output of acyclic elastomers—special-purpose types such as neoprene, butyl, silicone, vinyl—totaled 543 million lbs. in 1953, a 9.7% increase over the 495 million produced in '52. The over-all sales figure was also up by 33 million lbs.—522 million for '53, 489 for '52.

Of the acyclic group, neoprene (GR-M)—used mainly for gasoline hose and where resistance to oil and greases is important—racked up the highest output figure—180 million lbs. According to BDSA's revised statistics, about 147.6 million lbs. was domestically consumed and a little more than 25.7 million was exported. Stocks at the end of last year amounted to 25.7 million lbs., an increase over '52's 19.1 million.

Production of the inner-tube rubber, butyl (or GR-I), during 1953 was about 176 million lbs. U.S. users bought about 174 million lbs.; exports amounted to only 531,000 lbs.

**A Glance Ahead:** A few weeks ago Reconstruction Finance Corp., present operator of the government plants, rescanned its previous production plans for May, June and July, and decided—after noting what it described as a “diminishing second-quarter sales trend”—to cut back production by 1,520 tons. During July, the agency will turn out its lowest monthly quantity in several years.

Here's RFC's breakdown:

	Output (in tons)	Sales (est.)
May	34,300	37,000
June	34,980	32,500
July	33,000	34,000
Totals	102,280	103,500

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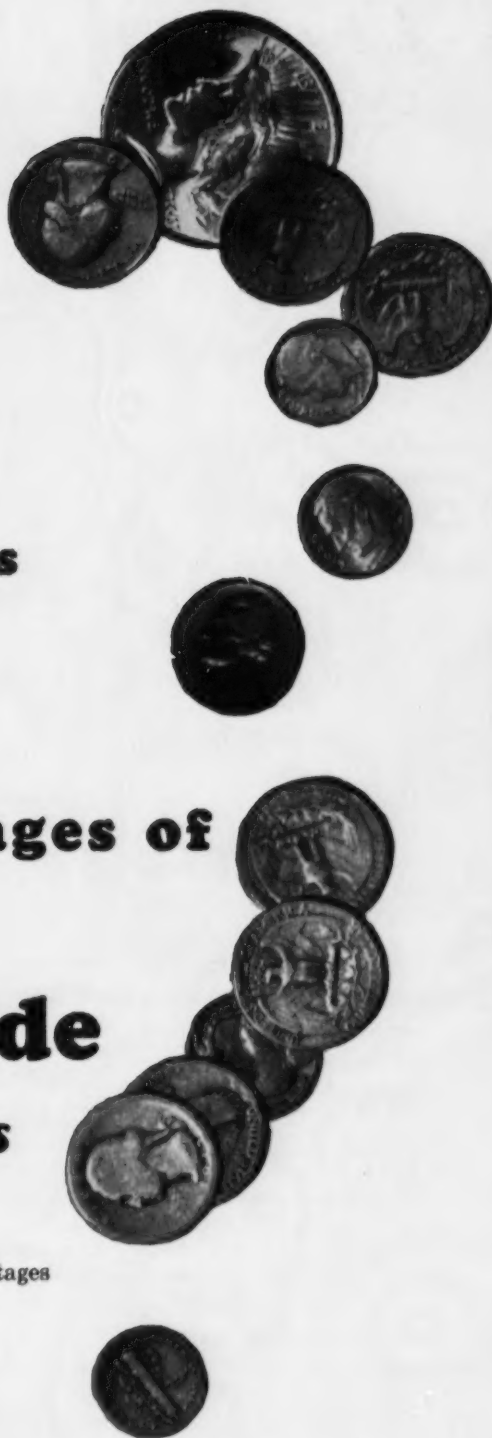
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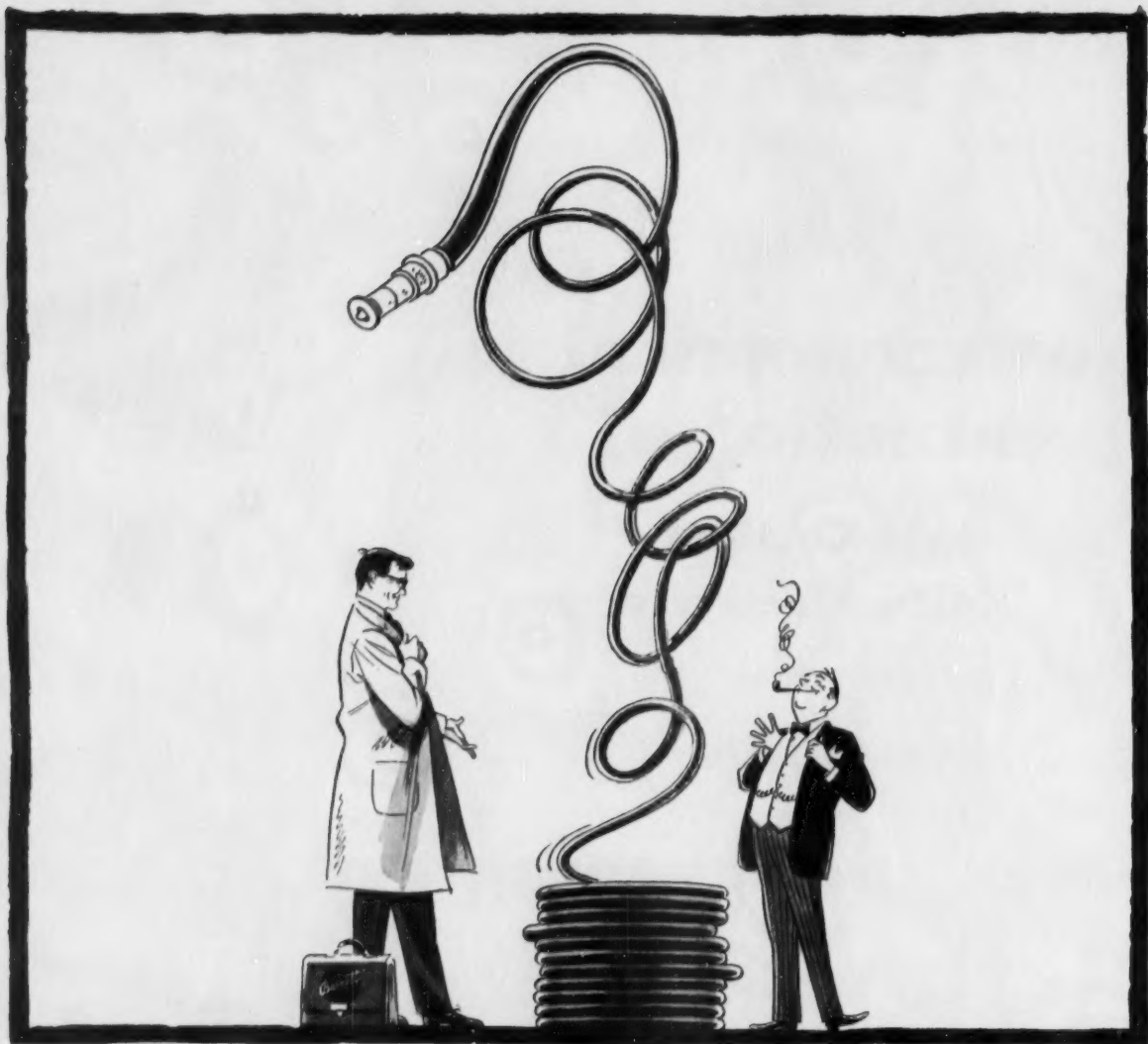


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## How "Doc Barrett" adds flex appeal to vinyls

Belts and baby pants, shower curtains and window drapes, garden hose and raincoats—these are among the thousands of every-day products made of vinyls. Among today's most popular synthetic materials, vinyls got off to a slow start. Problem: Lack of flexibility met with customer resistance. Solution: Phthalate plasticizers, which impart to vinyls the flex appeal (and commercial success) they enjoy today.

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# SPECIALTIES



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## Chemicals and Curls

Ready to celebrate its tenth anniversary in July, the home permanent business can look back on a pretty fabulous record: in the short space of a decade it has climbed to sales of 45-50 million kits per year with a retail value of \$70 million.

That \$70 million stake is a prime reason behind the unending patent fights that have characterized the industry. Just last fortnight Judge Irving R. Kaufman in U.S. District Court (New York City) upheld a recommendation that the McDonough patent (U.S. Pat. 2,577,710, covering thioglycolic acid-based wave treatments), controlled by Sales Affiliates, Inc. (New York) be held invalid. The patent battle has Sales Affiliates on one side and Toni, Helene Curtis and others as the opposition.

Sales Affiliates has served notice, though, that it isn't giving up the fight. (It has licensed most of the home wave kit makers. But it hasn't licensed Toni, now a division of Gillette, and Toni is still pacing the home wave kit field.)

Toni knows full well what the stakes are—and so do other firms manufacturing home permanents. First thought to be another fad, these products now consume around one-half the dollar volume of chemicals sold for permanent waving.

Since Toni made home permanents

a household item back in 1944, it alone has sold more than 200 million kits. This year, to hang on to the top spot, it will spend \$18 million for advertising, put another \$1 million into research.\*

**Quartet:** The big four in the field are Toni (which claims it has two-thirds of the market), Procter & Gamble, Richard Hudnut, and Lever Brothers, probably in that order. P&G has Lilt and Lilt Party Curl—the latter for children. Hudnut also has two, including one for children; both are sold under the Hudnut name. Lever sells Shadow Wave and Rayve.

Others enjoying a sizable portion of the business: Helena Rubinstein (with Spun Cream and Spun Cream Pin Curl); Elizabeth Arden (3-Wave Permanent); Gini Products, Inc. (Pin-Wave); Wavall Thermal (Nutri-Tonic), and Daggett & Ramsdell, Inc. (Debutante). No longer in the picture is Lehn and Fink, which after buying Portrait a few years ago failed to make a go of it. Helene Curtis makes kits for beauty shops only.

Among these companies there's a battle going on that doesn't involve patents but does affect promotion tactics. It centers around neutralizing.

\* Over 100 research and laboratory personnel do toxicological studies on animals, dermatological patch tests on humans, off-the-head tests on human tresses, and use tests on volunteers in the company's Chicago clinic (see cuts).

Some makers declare wave lotions should be self-neutralizing; others, just as positively say a separate, neutralizer is necessary.

Hudnut, as in the past, holds the most rugged opinion, takes the position that it's the neutralizer that gives the waves. (Products without neutralizers depend on air to do the oxidizing.)\*

In nearly all the home wave kits thioglycolic acid is the base. Many firms, Hudnut included, use sodium perborate as the separate neutralizer. Potassium bromate is another. While hydrogen peroxide is the one used in most beauty salons, sodium bromate is taking on increased importance because of a new tube application technique.

**How It's Done:** One key to Toni's sales leadership is its broad range of products. It sells:

- Toni. It employs a neutralizer, comes in three types: super for hard-to-wave hair; very gentle for bleached hair, and regular for normal hair.
- Prom. Three types. Claimed to be the first of the self-neutralizers.
- Bobbi. A self-neutralizing pin curl type.
- Silver Curl. For grey hair. Self-neutralizing.
- Tonette. For children.
- Children's Prom.
- Special Toni. Made by Ideal Toys for use on dolls' hair. It's merely water. Toni licenses the name.

Thus, Toni bids for business in every age group, has an entry on both sides of the "neutralizer" squabble.

**Buyers' Whims:** How effectively the company has put across its sales message shows up in a CW survey of buyers' preferences in one of the country's leading cities.

In six major department stores, Toni was undisputed leader (Hudnut was tops in another; one sold only Elizabeth Arden's home wave). One big drug chain said Toni outsold all competitors, and another reported that Toni's Bobbi came in first. One view is that Bobbi owes much of its popularity—and it has been rated as number four, nationwide—to the short Italian haircuts, which require only pin curls.

But the company has its critics. Said one department store buyer: "We don't emphasize Toni because we get more cooperation from Hudnut, which helps us with on-the-spot promotion. Also, I don't like the fact that Toni has been peddled to every

\* One concern calls the self-neutralizers "ideal" because "the air is subjected to only one chemical instead of two . . ."



PATCH TEST: Checking skin effects of a new formula at the Toni labs.



POST TREATMENT EXAM: Photomicroscope, extensometer show effect on hair.

kind of off-beat store—supermarkets, everything but garages.”

**No Clean Sweep:** Naturally home permanent makers would like to net 100% of the business. But no clean sweep is likely. Here's why:

Basically, most women seem to get a better cold-type permanent wave at a beauty shop. The operator, of course, is more skilled in hair dressing than the average housewife. And because most salons use a stronger thioglycolic acid composition than do kits, the wave is likely to last longer.

Just how much the user's skill has to do with the results is hard to evaluate. One consumers' research organi-

zation, however, suggests that 90% of the success of a product depends on the user's talents, and only 10% “on the use of a well-formulated wave lotion.”

Actually, it's this human element that helps to keep home permanents competitive. If a user doesn't get the results she had hoped for, she can blithely blame it on the product, and resolve that the next time she will try something different. Brand shifts have also been spurred by the tendency of some makers to overstate the efficacy of their product by underestimating the time required to assure a satisfactory wave.

**Foreign Situations:** While makers of home permanent kits report that overseas sales continue to rise, the situation could be far better. In some countries, profitable markets just can't be cultivated. Reason: beauty shop interests are strong enough to prevent cold-wave lotions from being sold.

In this country, too, beauty operators have fought the wave kits. Their battle has been waged by emphasizing the “dangers” of home waves, plugging the superior results of permanents given by professional operators. However, their campaign has been relatively unsuccessful in keeping women from trying the kits, which cost only a fraction of comparatively expensive professional treatments.

Not all business, however, has been at the expense of beauty parlors. Many buyers of the kits are women who could not afford to visit a beauty salon. It's the never-ending quest for beauty that has built home waves to a multimillion-dollar business. And it's a business that's still on the rise.

## Cincinnati Bound

Everything but Ohio River paddle-wheelers will be bringing members into Cincinnati for the 40th midyear meeting of the Chemical Specialties Manufacturers' Assn.

The gathering's slated for May 23, 24, 25, at the Netherlands Plaza. Among the topics coming up for discussion:

- Dermatological effects of synthetic detergents.
- Cyclothrin, a pyrethrin-like insecticide.
- The 1953 survey of aerosol production.
- Use of polystyrene latices in self-polishing floor waxes.

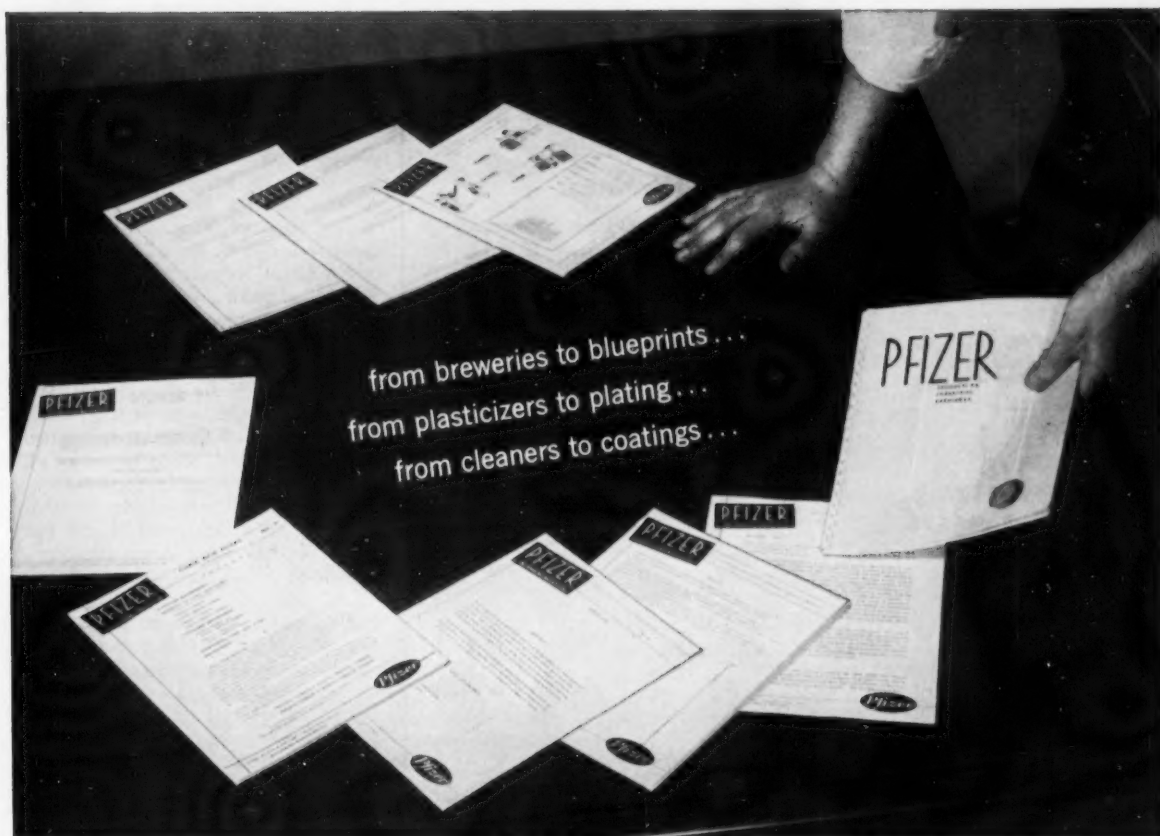
## The Paint Thickens

If T. F. Washburn Co. (Chicago) has its way, there'll be less stirring for the paint user. Washburn is now laying promotional fires for a new thixotropic alkyd vehicle that it patented last December (CW, Jan. 16).

Washburn, well known in the oil paint supply field, has come up, essentially, with a vehicle for producing gelled paints. The product is called, simply, Washburn Thixotropic Alkyds.

So thick that they won't even pour out of the container, the gelled paints made with them don't have to be stirred to be used. Says Washburn, they should not be stirred at all. A painter simply dips the brush in and flows the paint on—brushability is actually better, it's claimed, than with





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conventional coatings.

The new vehicles have been under more than four years of development. Heading the research was William Winkler. And for over a year, Atlas Powder's Industrial Finishes Div. (Stamford, Conn.) has been quietly selling its Zaflo, based on the Washburn resins (CW, Feb. 13).

**No Drip:** Advantages accruing to the jellied paint are many, Atlas and Washburn agree. Tints don't float to the top of the can, and pigments don't settle out. (Paints stored over two years with the gel vehicle show no separation of ingredients, Washburn says.) After the paint is brushed on, it immediately starts to gel again, which prevents sagging or curtaining.

Painters will appreciate another feature: the gelled paints won't run down the brush nor down the user's arm, and won't trip off the brush easily.

No special equipment is required to make the thixotropic paints. They can be made in gloss enamels as well as flats and semiglosses. The new vehicle flows well in mixing equipment, is claimed to have good wetting and grinding properties. The thixotropic alkyd is 60% solids, compared with 40% solids content of conventional alkyds; price of the new product is about 20.5¢/lb., against 17¢/lb.

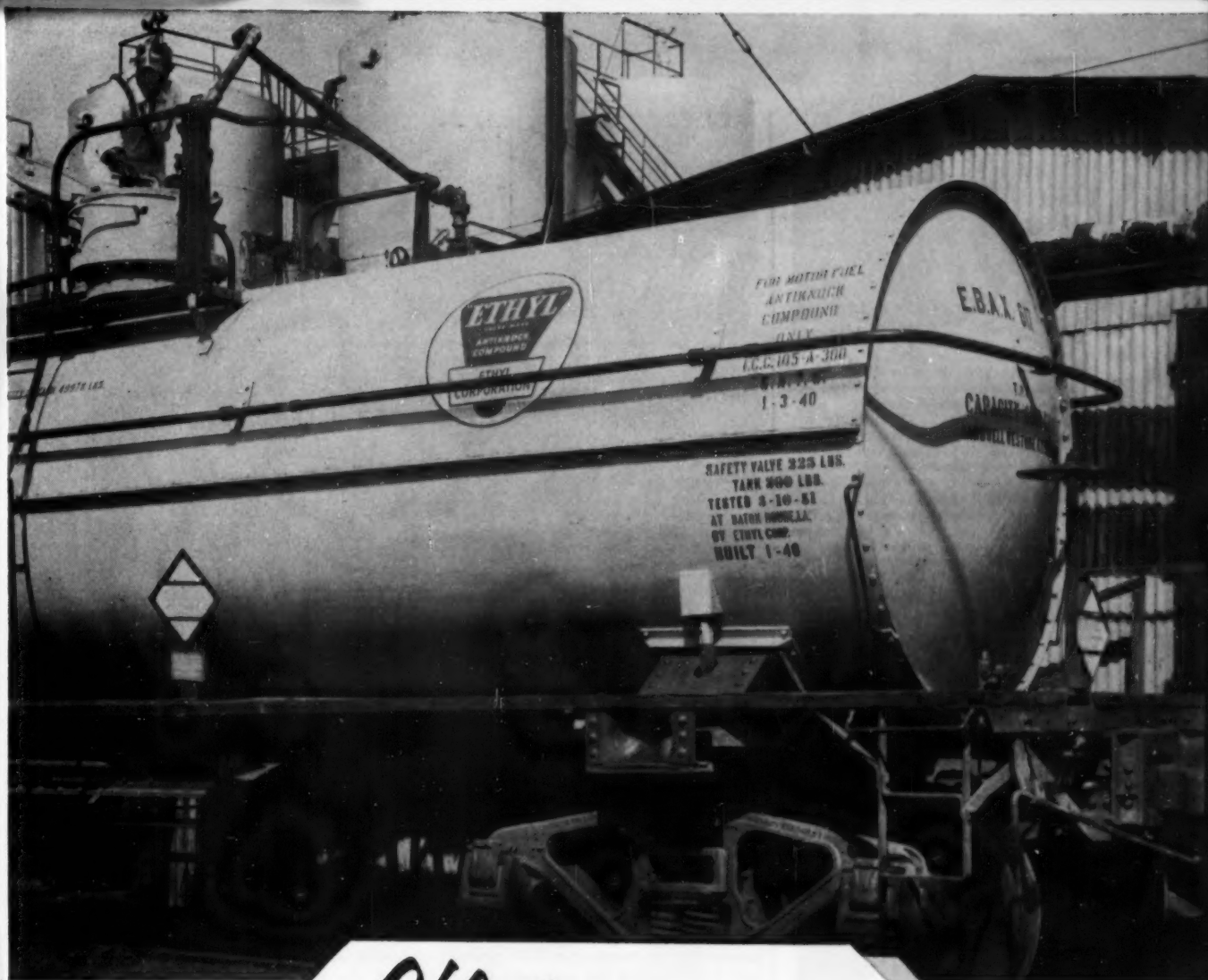
Secret of the thixotropic alkyd is the resin. According to the patent, this is formed by heating polyamides with vehicles such as glyceride oil, modified alkyds, and varnish ester-bodies. Basically this same resin has been sold by Washburn for some time, but it has been used to produce extra-smooth paints, rather than gelled ones.

Brimming with faith in its new product, Washburn sees the thixotropic alkyds replacing other vehicles in all conventional oil-based paints.

But what about water paints?

Maybe B. F. Goodrich Chemical Co. has a clue to the answer in the case of latex paints. It has recently been stressing the gelling properties of its Carbopol 934 synthetic gum. Addition of 1% of the gum to water, and neutralization with a base, gives an instant gel. Probably, 934 isn't the complete solution to jellied water paints, but there's no denying that such a use has been toyed with.

With better mixing and better ingredients, readying a paint for use is nowhere near the task it once was. But completely eliminating the stirring phase would be welcomed by the amateur painter—and it's a property he'd likely be willing to pay for.



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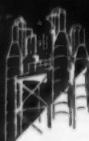
PART DISPLAY: For shaping aircraft parts, chemicals sub for milling machines.

## Chemicals Take Their Cut

Chem Mill's the new precision metal forming process worked out by Turco Products, Inc., and North American Aviation (both Los Angeles). Until patents are granted, Turco and NAA won't breath a word on the solvents or masking compounds for their system, but they do tout the accuracy (up to .002 in.), low cost, and simplicity of

operating with the Chem Mill process.

Currently limited to forming aluminum parts, the system is particularly effective with thin sections—there's no physical strain put on the part in the forming steps. And parts come out smooth and clean. Already used by NAA, the process can be licensed now from Turco.



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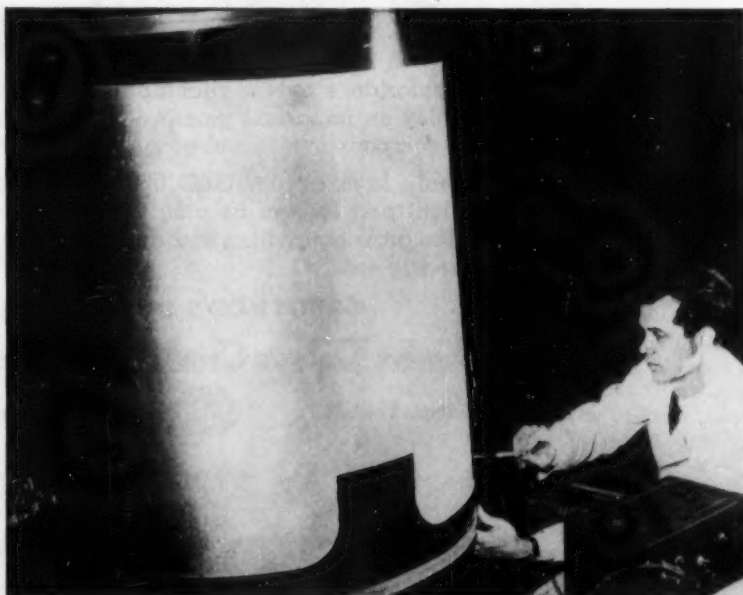
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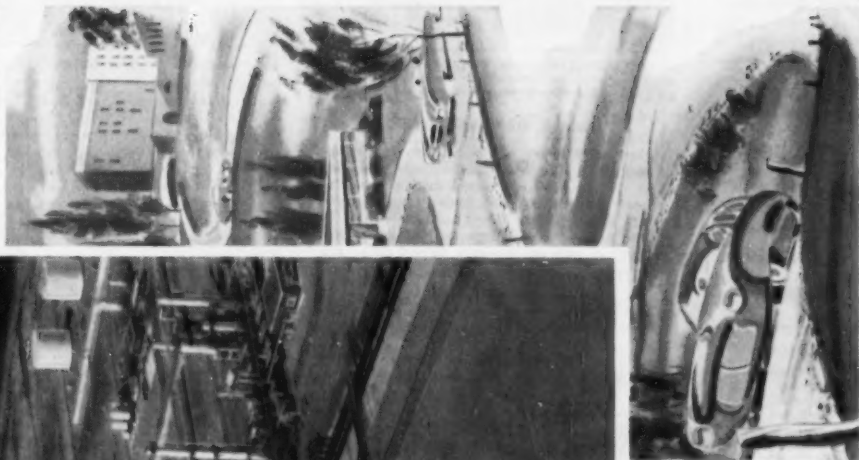
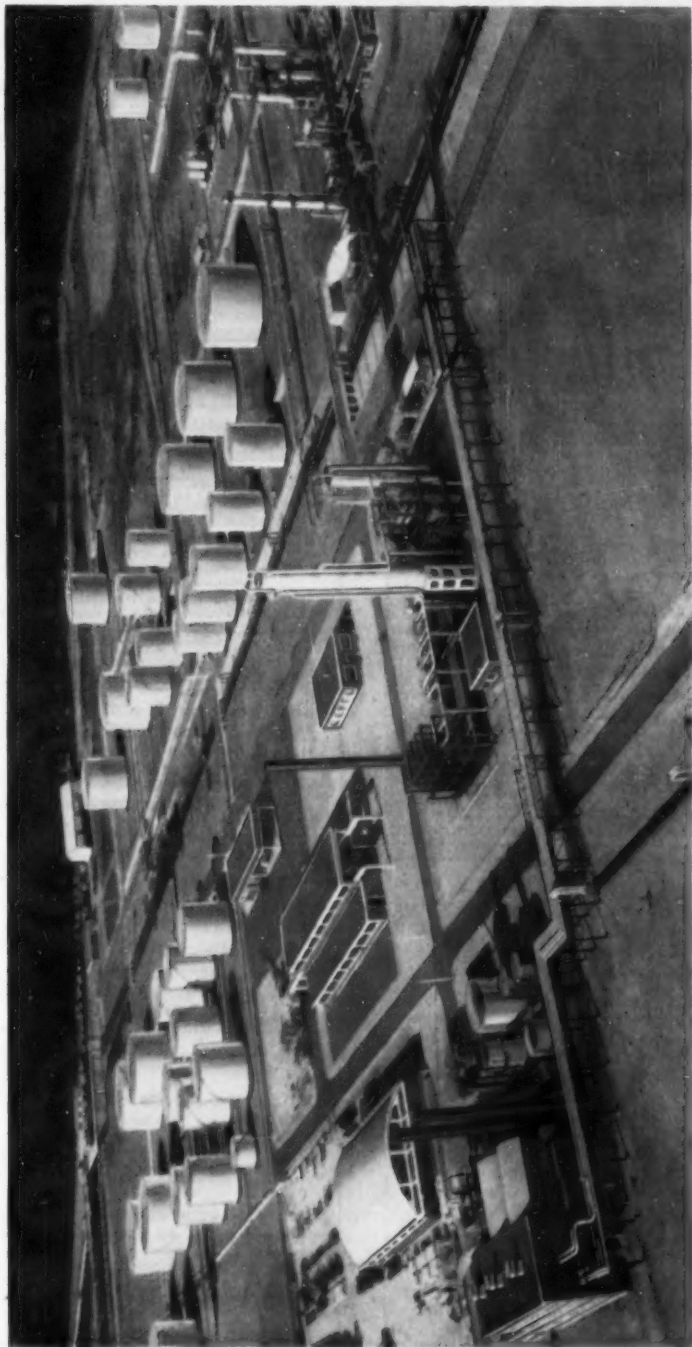
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## ITALY'S NEW LOOK

The basic design of the "Sarpom" refinery, recently completed on the plains of Northern Italy, is the work of Stone & Webster Engineering Corporation, with detailed engineering, procurement and construction management by its affiliate, E. B. Badger & Sons Limited.



The refinery, having a capacity of 15,000 barrels per day, consists of crude distillation, reforming, treating and general facilities. Catalytic cracking and polymerization units are now being added.

These facilities for Società per Azioni Raffineria Padana Olii Minerali, a Caltex-Fiat subsidiary, are among eighty new refinery units recently executed by our Badger Process Division.

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## Canned Shampoo

**Starting at the top**—with an aerosol shampoo—and intending to work up, Manhattan Soap Co. (Boston) is launching a new division, Sweetheart Cosmetics.

And Sweetheart Shampoo with Egg is the novel first item. An all-soap (there's 20% whole egg by volume) formulation rather than a detergent, it is a foaming aerosol, said to produce nearly half a gallon of suds. Other pressure-packed shampoos have been put on the market, but corrosion has stumped most of the makers. This time American Can Co. has come up with a lining for the container—it's a two-layer coating system—that it says will beat the destructive effects of water and soap stored under pressure.

The new shampoo pack is priced at 98¢; it's said to be about a three months' supply. Initial distribution of the red, white and gold aerosol can is in the New England area. By mid-summer Sweetheart hopes to have it in drug and department stores throughout the country.

Puritan Distributing Co. (Boston) is currently loading the shampoo. On the Canco container is used a foam dispensing valve made by Nauvert.

Manhattan Soap Co. is well known nationally for its Sweetheart soaps and other personal products. The new shampoo is its first aerosol venture, and it's currently the only product of the Sweetheart division. But Frank Finn, product manager of the young section, has several other products coming up. Until the shampoo is well launched, though, he's concentrating on that alone.

**Rubber Cement:** Goodyear Tire & Rubber Co. and Surface Coatings, Inc., have combined synthetic rubber with cement to make a new paint. Designed particularly to protect concrete surface from abrasion and vibration, the coating, Surco Yellow Label, is suggested for painting floors, acid-resistant tanks, swimming pools, and for waterproofing plaster.

The coating is made by substituting styrene-butadiene latex for much of the water in cementitious mixes.

**Add Cures:** Several new pharmaceuticals are on the market now. Among them:

- Parke, Davis & Co. has a new tablet-form anticoagulant. The prescription-sold tablets contain 50 mg. of phenylindandione, are claimed to be faster-acting, shorter in duration of effectiveness than Parke-Davis Dicumarol.

- The Upjohn Co. has three new forms for its brand of hydrocortisone acetate and neomycin sulfate combinations. Upjohn now has Neo-Cortef acetate ointments (1 and 2.5%) for anti-inflammatory action on skin, and Neo-Cortef Drops and Ophthalmic Ointment for treating inflammatory reactions in the eyes.

- **Fast Fixer:** Philip A. Hunt Co. (Palisades Park, N.J.) is now selling a new high-speed liquid fixer for photographic work. A separate hardener is included with the fixer, which is claimed to give clear mechanical film in 204 seconds, clear photo papers in less than 45 seconds.

- **Tubed Tile:** Stop Gap is the new plastic caulking compound introduced by Sapolin Paints, Inc. A plastic rubber compound, it is waterproof, resists shrinking, crumbling, or discoloration. Stop Gap is supplied in nozzle-equipped tubes holding 8 oz., sells for \$1.

- **Domestic Couple:** Standard Oil Co. (Indiana) is introducing two insecticide products in its 15-state distribution area. Mothban moth killer is an aerosol-packed insecticide effective against clothes moths and carpet beetles. Standard Pressur-Pak plant spray is a broadly effective control for shrubs, flowers, and ornamentals.

- **Fertilizer Squirts:** California Spray Chemical Co. is now selling a plastic sprayer for applying its soluble fertilizer, Ortho-Gro liquid plant food. The hand-held spray unit attaches to the hose at the nozzle; fertilizer concentrate is drawn out of the container by the stream of water.

- Monsanto's fertilizer sprayer, Foliator, is now getting national TV promotion.

- Another sort of fertilizer applicator is being used by Oswego Soy Products Corp. (Oswego, N.Y.) Its Feralon Plant Food Div. is packaging 3 oz. of plant food in a polyethylene squeeze bottle. A pointed dowel rod comes with the packet—it's used to drill holes in the earth around the plant so that the fertilizer can be squirted in. Feralon 6-10-4 Organic Plant food and Soil Conditioner contains fritted trace elements, vitamin B<sub>1</sub> and an antibiotic as well as the ordinary plant nutrients.

- **Big and Little:** Silicone rubber for window gaskets reached a sort of zenith recently; Bacon Industries, Inc. (Watertown, Mass.) made the largest gasket of this sort for the Quartermaster Corps. The Corps will

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## SPECIALTIES . . . . .

use it in making its new climatic laboratory.

• Minnesota Mining and Mfg. Co., on the other hand, is using injection molding equipment for turning out subminiature and microscopic rubber gaskets, and similar molded parts.

• Pedal Spray: Foot Care is a new aerosol packaged product developed by Foley & Co. A sanitizer, the specialty is sold to stop athlete's foot and bromidrosis when sprayed in shoes. Price: 98¢.

• Compounders Note: National Lead Co. is introducing several new plasticizers for vinyls and other plastics. Named NL F-21, NL F-31, NL F-41, and NL A-54, they are claimed to have low volatility, and good low-temperature flexibility.

• Wax Mask: Boeing Airplane Co. is using a high-temperature wax for masking metal parts to be copper plated. The wax, which melts at 350 F, takes the place of tape and paint previously employed. It is, of course, removed easily by heating and can be reused.

• Phenolic Coat: For coating phenolic plastics, Logo, Inc. (Chicago) has a new finish called Logo Force P-85. It's based on a polyester resin, and is sold in pigmented and metallic pigmented forms. Hardness and adhesion is claimed, along with grease and solvent resistance.

• Tungsten Skin: Another sort of coating, which can be applied to any surface, is supplied by the Lockrey Co. (Southampton, N.Y.). It's named Tungstide, and is a near-colloidal suspension of metallic tungsten in a hard plastic. Also incorporated in the mixture is Lockrey's Liqui-Moly, a molybdenum disulfide lubricant. The coating is claimed to impart surface hardness to any surface on which it's applied—it can be applied at room temperatures by brush, dip or spray, and will air-dry.

Tungstide is suggested to replace metallic inserts in plastics at wear points. In cases where dimensional accuracy is needed, the coating can be brushed on the plastics mold, and be cured integrally with the piece.

• Legal Recourse: Ciba Pharmaceutical Products, Inc. (Summit, N.J.) has started legal action in the New York Supreme Court against Towns & James Inc., Brooklyn. The suit is to enforce Ciba's "fair trade" prices.

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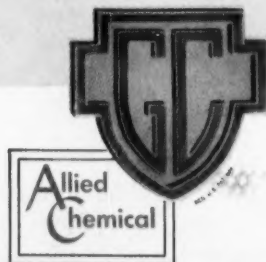
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